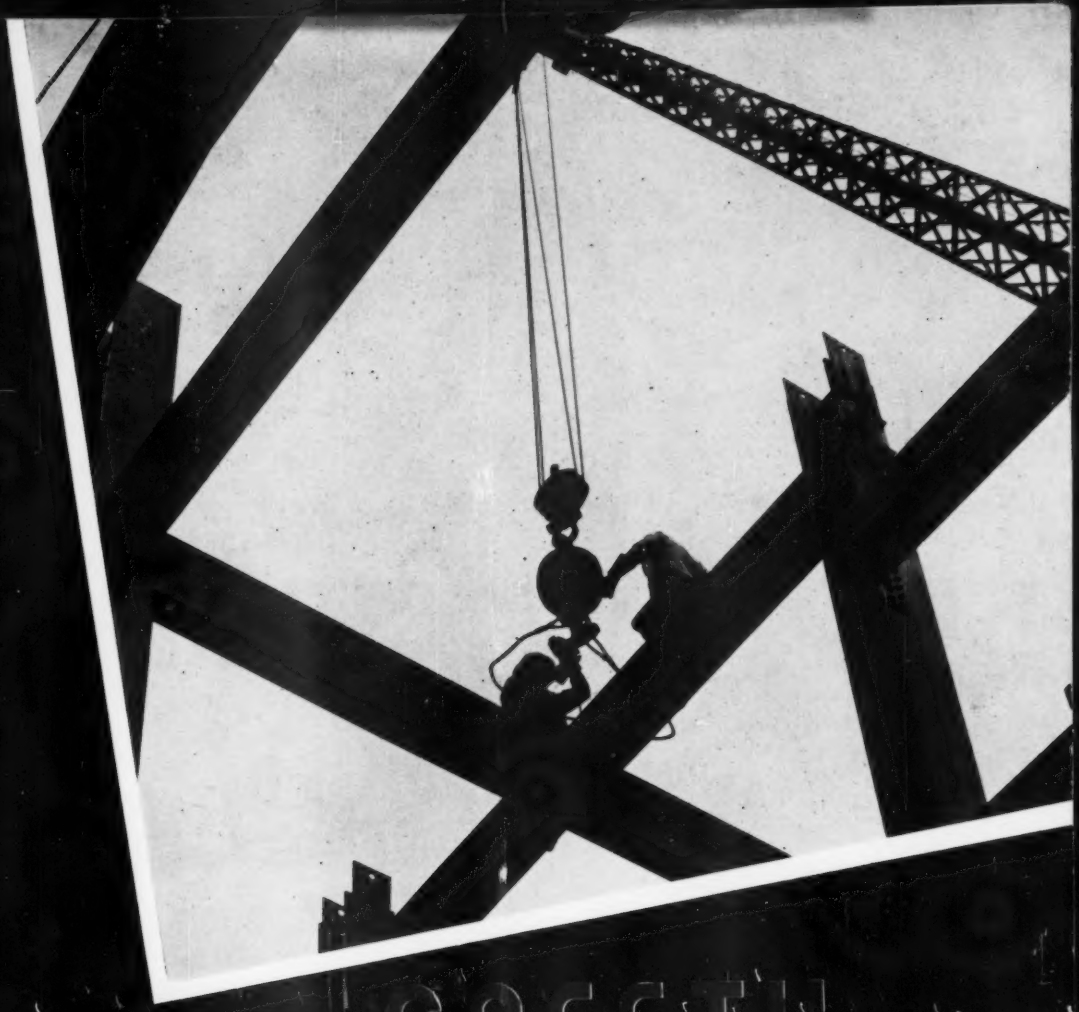

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No. 1615—Tan elk with heavy, single oiled oak leather sole, half rubber heel with leather base. A and B—sizes 6 to 12, C, D, E, EE—5 to 13.

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No. 1621—Brown bal, single oak leather sole, half rubber heel with leather base, lined counter, green Nado lined quarter. A and B—sizes 7 to 12, C, D, E—5 to 12.

These are the styles your employees are ready to buy **right now** for Summer dress and street wear. You can give your Foot Safety Program a healthy boost . . . **keep more men in safety shoes through the hot months** . . . by showing them the same identical styles WITH steel toe protection! Breezy vents and woven strips give heat the air . . . look fine, feel fine on the job and off. Order a few pairs for display right away. Your men will like the saving as well as the extra comfort.

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- ☐ Chemical
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- ☐ Coverlite
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- ☐ Dust
- ☐ Flash
- ☐ "Hat-n-Gogs"
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- ☐ Plastic
- ☐ Side-Shield Type
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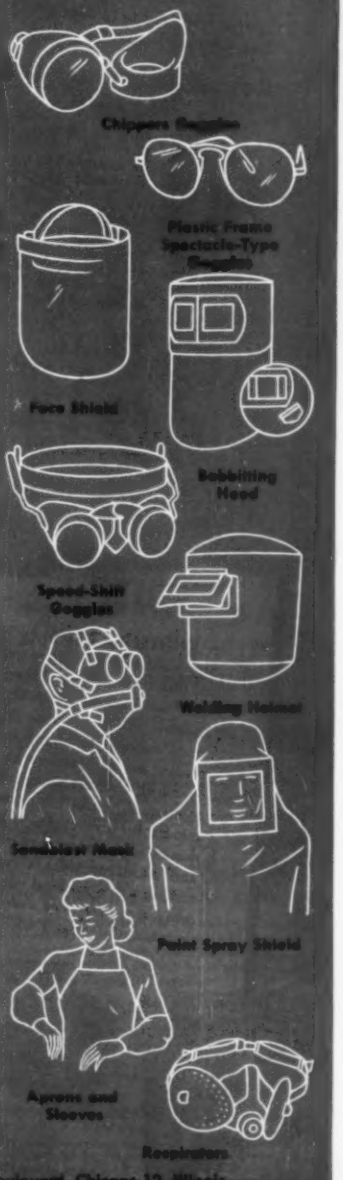

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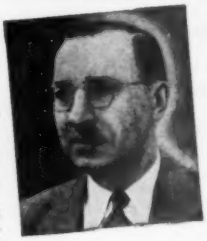
An informative discussion of dry chemical fire extinguishing agents with particular emphasis on factors responsible for quality and dependability.

. . . . by

Arthur B. Guise
Chief Engineer
Fire Extinguisher Division
ANSUL CHEMICAL COMPANY

— ANSUL DRY CHEMICAL — CONTROLLED QUALITY FOR CONSISTENT DEPENDABILITY



Your extinguishers can fail to operate when you need them most . . . or operate with less than maximum effectiveness and fail to extinguish the fire . . . unless properly maintained and charged with dependable first quality extinguishing agents.

This is equally true of dry chemical fire extinguishers.

Ansul *"PLUS-FIFTY"* Dry Chemical is produced under carefully controlled conditions to meet specific requirements. *This means that every container of Ansul Dry Chemical has the same uniform high quality.* Ansul Extinguishers are designed for use with Ansul Dry Chemical only and, if consistent high fire extinguishing effectiveness is to be obtained, Ansul Dry Chemical should be used for recharge purposes.

There are a number of factors influencing dry chemical quality and all must be controlled because variations in a dry chemical can affect its fire extinguishing effectiveness.

PARTICLE SIZE. The sodium bicarbonate in Ansul Dry Chemical must pass tests to insure that the size of the particles falls into a certain range. If a certain percentage of the particles are over a maximum given size, the fire extinguishing effectiveness of the dry chemical is measurably decreased. Ansul's qualify control procedures insure that the fire extinguishing effectiveness is always high.

MOISTURE REPELLENCY. The materials and methods used to produce water repellency in the finished dry chemical directly affect its flow and packing characteristics and electrical resistivity. All dry chemicals will absorb moisture when exposed to highly humid atmospheres. Excessive moisture absorption causes caking of dry chemical and resultant failure of the extinguisher to operate. Ansul Extinguishers and shipping containers for dry chemical are weather-proofed to minimize the possibility of moisture absorption . . . and Ansul provides a further safeguard by furnishing a dry chemical which *can absorb four times more moisture than ordinary dry chemicals* without harmful effects to any of its characteristics.

FLOW. Ansul Extinguishers are designed to discharge dry chemical at a definite rate. Quality control during the manufacturing operation insures that Ansul *"PLUS-FIFTY"* Dry Chemical will flow at a sufficiently high rate to insure maximum fire fighting effectiveness.

PACKING. *All* finely divided solids tend to pack. Dry chemical is no exception. Daily tests of Ansul *"PLUS-FIFTY"* Dry Chemical as it is produced insure that every batch will fluidize readily. Proper design of Ansul Extinguishers doubly insures fluidizing of dry chemical and proper, effective, discharge.

ELECTRICAL RESISTIVITY. Ansul *"PLUS-FIFTY"* Dry Chemical has an electrical resistivity of 1000 megohms. Frequent tests are made to insure that all Ansul Dry Chemical is equally resistive and always safe to use on electrical fires. Again, Ansul Dry Chemical can absorb four times more moisture than ordinary dry chemicals without impairing its electrical resistivity.

SUMMARY. Ansul's Engineering and Research Departments have developed specifications and tests to control particle size, moisture repellency, flow and packing characteristics. Last year 3500 flow tests were conducted on Ansul Dry Chemical to assure uniformly high quality of the manufactured product. You are assured of consistently high quality and maximum dependability with Ansul *"PLUS-FIFTY"* Dry Chemical.

Send for your copy of File No. 674. You will receive additional technical information on dry chemical. Also included is printed material describing Ansul's complete line of Dry Chemical Fire Extinguishing Equipment.

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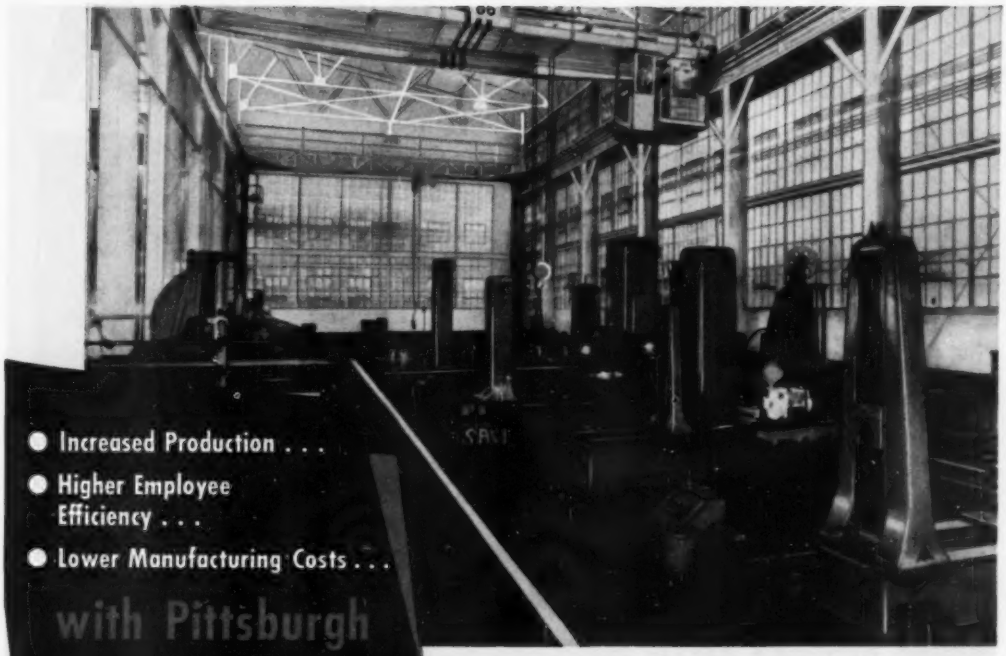

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- Lower Manufacturing Costs . . .

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Works Manager of Aetna-Standard Engineering Company reports scientific use of energy in color is an excellent business investment that benefits workers and management alike.

PITTSBURGH can present no more convincing statement of the many benefits that result from the use of COLOR DYNAMICS—based upon the scientific principles of the *energy in color*—than this letter from R. D. Johnson, Works Manager of The Aetna-Standard Engineering Company of Youngstown, Ohio, consultants, designers and builders for steel and non-ferrous industries.

● **"We are pleased** to summarize what application of your system of COLOR DYNAMICS has done for our Ellwood City, Pennsylvania, plant.

● **"It was our custom** to paint our plant and equipment periodically, mainly for the purpose of protecting surfaces.

● **"Painting** can be a business investment, the same as machine tools and equipment. When a machine tool is purchased, the effect this tool will have on cost savings, production, employee efficiency, etc., are considered very carefully. Why not apply this rule to painting?

● **"With this** thought in mind, we asked color engineers of The Pittsburgh Plate Glass Company to visit our plant to explain the advantages of COLOR DYNAMICS.

● **"The survey was made** and the suggestions made by Pittsburgh color engineers were highly acceptable to our management.

● **"In a recent survey** we were pleased with the reactions and comments of our plant employees.

(a) General appearance was greatly improved.

(b) Better light reflection from ceiling and walls caused less eyestrain.

(c) Specially marked lines signified hazards and helped to reduce accidents.

(d) Housekeeping was simplified. Employees take pride in their work area and help to keep it clean.

(e) Improved morale helped to increase efficiency as well as to create better industrial relations.

● **"Considering** every factor, we believe that Pittsburgh COLOR DYNAMICS has contributed greatly to the success of our operations."

You Can Have A Color Engineering Study of Your Plant FREE on Request

● Why not investigate what Pittsburgh COLOR DYNAMICS will do for your plant? For a complete explanation of how this scientific painting system can be made to work for you, send for our free, profusely-illustrated booklet.

● Better still, let us make a detailed COLOR DYNAMICS study of your plant for you—*free* and without obligation. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our trained color engineers see you at your convenience. Or mail coupon.

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Pittsburgh Plate Glass Co., Paint Div., Department SM-51, Pittsburgh 22, Pa.

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FORMERLY "SAFETY ENGINEERING"

The Magazine of Safety

Reg. U. S. Pat. Off.

A MONTHLY PUBLICATION DEDICATED TO ACCIDENT PREVENTION, MAINTENANCE, HEALTH CONSERVATION AND FIRE CONTROL FOR EFFICIENT PRODUCTION.
EST. 1901

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AMERICA'S PIONEER MAGAZINE IN ITS FIELD

SAFETY MAINTENANCE & PRODUCTION is indexed regularly by Engineering Index, Inc., New York

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In Business for Your Safety

More and more businesses, stores, hospitals, schools and other public buildings are now using the new anti-slip waxes containing Du Pont "Ludox" colloidal silica. Tiny "Ludox" particles in floor waxes give new safety to walking.

Waxes containing "Ludox" have extra hardness. And waxes properly formulated with "Ludox" are fully equal to regular floor waxes in gloss, water-resistance, freeze-resistance and leveling. With all these advantages, you can see why waxes containing "Ludox" are specified by many safety and sanitation engineers.

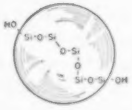
There are many different formulations already available to meet the specialized needs of institutions, business and industry. New anti-slip floor waxes containing "Ludox" are continually being developed by wax manufacturers in cooperation with Du Pont research men.

Make a point of asking your wax supplier to show you how his products containing "Ludox" help solve your floor-wax problems.

Grasselli Chemicals Department, E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Delaware.

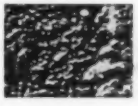
THE ACTION OF "LUDOX" IN WAXES

results from the structure of the individual colloidal silica particles. Each particle is a smooth, minute sphere—about one two-millionths of an inch in diameter. These spheres are clear and give wax films added transparency and depth of lustre.



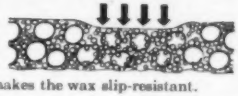
GIVES WAX MORE HARDNESS

Each wax particle gains extra hardness by being covered with many smaller, harder "Ludox" particles distributed throughout the wax film. This is shown in the electronphotomicrograph of the surface of a wax film, magnified 25,000 times.



GIVES WAX ANTI-SLIP PROTECTION

The pressure of a foot pushes the harder "Ludox" particles into the softer wax particles. The anubbing action which results makes the wax slip-resistant.



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LUDOX REG. U. S. PAT. OFF.

COLLOIDAL SILICA

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

It's Safe to Say

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★ NO CONTROVERSY

NEVER within the memory of any living person has there been the equal of the home-coming parade honoring General of the Army Douglas MacArthur. The same day these lines are being written, New York's teeming millions stopped all pretense at work and massed in record-breaking crowds along the line of march while tons of ticker tape and torn telephone books descended from tall windows along Broadway's canyon in a veritable snowstorm of paper to welcome home a conquering hero.

Political discussions and analyses of foreign policy have no place within the pages of this magazine. Citizens of every political faith as well as friendly allies will regret that at this particular time a vast gulf must come between the nation's foremost hero and the government's architects of foreign policy. We like to think that each is completely sincere in his views and that our national welfare will not suffer because of the ever-widening breach.

Regardless of whose views are to prevail, it is not within us to question the patriotism of the leading protagonists. There is general agreement that the present war in Korea shows no immediate signs of coming to an early end, despite our national and individual prayers for an early and honorable peace.

For that reason, it behooves us as never before to give added emphasis to safety on the home front. As was pointed out in these columns last month, the picture would be even more discouraging than it is today if we had to depend upon the force of sheer manpower to defeat the enemy now confronting our armed forces in the Far East. Vast reserves of almost untouched manpower, far in excess of anything we can muster, can be counted upon to unleash destruction and inflict untold casualties on our men, but we have a mighty weapon in the path of which the enemy can be held in check. Our victory depends upon our productivity. Without that invincible weapon the future would be black indeed; but with all his resources of fanatical hordes, the enemy can be made to learn to his sorrow that his ultimate defeat is inevitable.

Without recourse to over-simplification, it can be said that we have the raw materials, the know-how and the production capacity to counter-balance the strength of masses of oriental puppets whose strings, it would seem, are being pulled from a capital in Europe. How tragic it is, then, to contemplate the possibility of our strength needlessly jeopardized by preventable accidents, fires and absenteeism in those plants turning out vitally needed implements of war. Every single accident in our industrial plants represents a loss as tragic as a battlefield casualty. Every plant closed by fire and every case of occupational illness is a blow to our military campaigns and an actual threat to our fighting forces who must depend upon the civilian population for fighting tools.

In the case of deliberate sabotage, our guardians of the law are equipped to ferret out and punish acts of a treasonable nature. Unfortunately, the law is somewhat more lenient with accident repeaters and those whose thoughtless actions can be indirectly responsible for appalling losses in battle.

In time of peaceful pursuits, industrial accidents are unfortunate and costly to many segments of our population. In time of war, they can be an act of treason against our sons and brothers defending with their lives our very existence. The impact of those accidents can be felt by every citizen in the land, delaying beyond all reason the day of victory.

★ ANNIVERSARY COMING UP

IN THE history of our country, fifty years can seem a short span indeed. And yet, a measure of pardonable pride can be taken in the knowledge that next month SAFETY MAINTENANCE & PRODUCTION will celebrate its Golden Jubilee as the nation's first safety publication to reach its fiftieth anniversary.

In preparation for that event, plans have been made to publish the most comprehensive review of the past, present and future of safety ever presented to an industrial audience. Special articles and priceless photographs from private collections will make our June number a genuine "collector's item" for those concerned with accident prevention and its relation to good production records.

At the end of the first—and probably the hardest—fifty years, a backward glance of nostalgia is permissible but you will not find in our Golden Jubilee Issue any plea for the "good old days." In safety, there is no such thing as the good old days; we still have a long and torturous road to travel, but, thanks to the crusaders and pioneers who first lit the torch, that road will be lighted so that the goal of accident prevention and reduction always will stand out in clear relief.

H. A.

1 SELL EYE SAFETY TO EMPLOYEES
Ask your distributor's representative to show you the kit of posters, pay envelope inserts, PA system scripts and other material that sells workers forcefully on *desire to use* proper safety eyewear.

2 SAFETY GLASSES FOR EACH JOB
A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

3 PROTECTION *PLUS* CORRECTION
For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

DADDY can't look now, dear. Not any more. He can't even know you as he once did because of the agony in his heart...

In winning workers to a genuine desire to use safety eyewear, you've got to hit hard to make your blows felt.

The graphic story pictured above is one from a dramatic series by Bausch & Lomb designed to make your employees *want to use* safety eyewear wherever ruled. It's the all-important educational phase of Bausch & Lomb's *total* eye safety service. Write Bausch & Lomb Optical Company, 693-5 St. Paul St., Rochester 2, New York, for complete information on a total eye service.

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It costs no more...

does a man-size job...

does it right!

a longer adhesive bandage

... insist on MSCo No. 100A

You get extra length (a full 3½ inches) when you buy the MSCo 100A 1-inch Adhesive Compress bandage. It's designed for Men of Industry—men who work with their hands and have muscular, well developed fingers and knuckles requiring a longer adhesive tape than ordinary compresses provide. This longer tape goes completely around joints or fingers and overlaps . . . prevents curling up at corners or peeling up at ends when hands get sweaty while working.

Notice how the protective crinoline opens off-center away from the pad and turned-back tabs keep soiled fingers from touching the sterilized pad. All 6 layers of the pad are a full ⅞" x 1⅛"—not just one layer but all 6. Also, this pad is all gauze, no cotton filler. It's placed on the tape in such a way that no loose threads stick out from under the tape.

Only MSCo, Medical Supply Company, brings you this longer adhesive compress with all of its extra advantages . . . and it's packed for the Flexible Unit System. Write your MSCo distributor or Medical Supply Company for samples of No. 100A today.

LONGER . . . the longest made . . . 3½" . . . fits all the way around and overlaps big fingers, knuckles, thumbs.

NON-RAVEL PAD . . . no loose threads in wound area . . . looks neat, stays neat! Pad is all gauze, no cotton filler.

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Bright Eyes *Stay* Bright...

when eye SAVERS stand guard!

Workers like the exclusive features of Watchemoket's TUC-AWAY goggle. W-Ided Retrax "telescoping" temples and change-around lens plan give comfortable fit and *sure* eye protection. Get complete details from your safety supplier or write direct.

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SUREFOOTED

as a fly *(almost)*

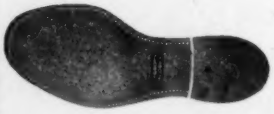
Each of the four soles shown, will REDUCE ACCIDENTS caused by slipping, and give extra long wear. Nearly all safety and work shoe manufacturers supply footwear with these soles.

NEO-CORD

A fine cord and neoprene sole that is resistant to oil, grease, gasoline, acids, caustics and heat. Cord construction gives NEO-CORDS a high non-slip efficiency for the life of the sole.

NEO-CORK

An outstanding cork and neoprene sole that gives long non-slip wear. NEO-CORKS resist gasoline, oil, grease, acids and caustics. They won't pick up metal chips, are waterproof and cushion the feet.



GRO-CORK

The finest cork and rubber sole. They are lightweight, waterproof and very slip-resistant. GRO-CORK soles won't pick up metal chips, they protect the feet from heat or cold, and are soft to walk on.

GRO-CORD

This remarkable sole, with its cord-on-end construction, affords non-slip footing and extra long wear. GRO-CORD soles should not be worn where grease, oil or gasoline saturates the footing.

Mr. SAFETY ENGINEER

Will you assist in a research program to obtain data on the proper sole to wear on a particular job? If so, let us know of any condition that is wrecking shoe soles or where footing is hazardous. We will cooperate with you, at no cost to your company, in determining what type of sole will be the safest and wear the longest.

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SAFETY MAINTENANCE & PRODUCTION

VOL. 101, NO. 5 • MAY, 1951

SAFETY — 1951 STYLE

Shown at New York's Annual Convention

Conferences and exhibits emphasize the latest developments in safety and maintenance equipment, devices and services.

THE newest ideas on how to protect people from machines, themselves, the weather, vocational and avocational hazards, and the dangers of living in the year 1951 were exchanged when safety, maintenance, fire and hygiene experts and industrial leaders met at the 21st Annual Greater New York Safety Convention and Exposition last month. The conference, held at the Statler and Governor Clinton Hotels, was sponsored by the Greater New York Safety Council with the aid of 67 national and local cooperating agencies, including eight departments of the city government, the U. S. Atomic Energy Commission, Red Cross and scientific societies. During the four-day convention, speeches and panel discussions gave visitors the most recent information on accident prevention in factories, hospitals, schools, on the highways, and in the home. Motion pictures on safety subjects were shown daily.

Popular with the convention delegates were the displays of safety and maintenance products and services grouped into 114 exposition booths covering 11,250 square feet on the Statler's 18th floor. 87 manufacturers of safety equipment, accident reduction services and associations showed all types of appliances and devices from sonic ear valves and the newest plastic lenses to recently developed fire extinguishers and elevator safety clamps. There were several novel developments in nonskid floorings, static controls to prevent fires and explosions, women's industrial uniforms, electronic guards for power presses, portable emergency lighting units, non-injurious grime removers, mine and industrial protective clothing and equipment, scaffolding, tank vents for flammable liquids, goggles and respirators, safety publications, lens cleaning stations, safety toe shoes, signs, etc. Organizations like the National Society for the Prevention of Blindness, the State Insurance Fund and insurance organizations were also represented by educational exhibits.

Civil Defense Problems

At the annual banquet, the principal speaker was Henry J. Taylor, well known business man, economist, journalist, and radio analyst, who was introduced by Harold K. Kramer, Assistant Vice-President of The Borden Co. and President of the Greater New York Safety Council.

The psychological aim of civil defense authorities is to produce among the population here a "controlled anxiety" which will steer them between the extremes of do-nothing indifference and latent panic. The plan was explained by Dr. George James, assistant director of the State Department of Health's division of medical service, at one of the home safety sessions.

Asserting that indifference to the possibility of an atomic attack led to failure to volunteer for training and "a missed opportunity to prepare the emotions for dealing with the horror of atomic attack," Dr. James said that the other extreme, undue anxiety, caused "the spread of upsetting rumors, inability to engage in purposeful joint activity, and the fatigue of attempting to do too much too soon."

Dr. James told the convention that a large amount of the most urgently required medical and other supplies for relief from the effects of atomic bombing "are already in regional depots."

The United States *(To page 57)*

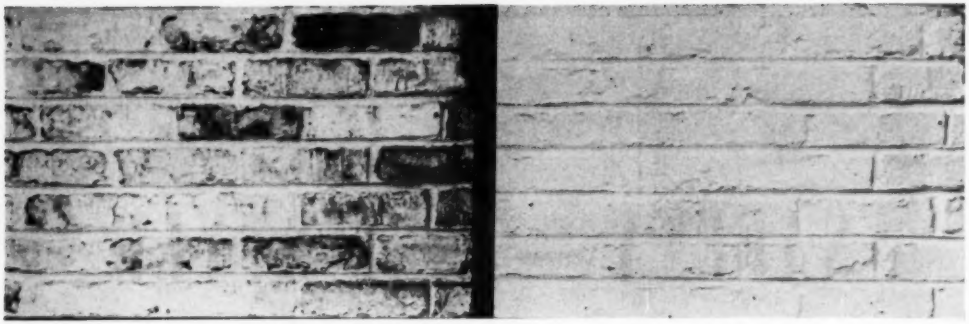


Figure 1. Picture at left shows section of a brick building poorly protected with a water emulsion paint which is spalling, flaking, cracking and wearing away excessively. The second picture shows the same surface after repainting with an improved synethetic paint designed for brick and stucco.

PAINT FAILURES . . .

FEATURE

This is the second of a consecutive series of three major articles dealing with Plant Sanitation. The next article of the series will appear in the June issue of SAFETY MAINTENANCE & PRODUCTION.

By E. D. PECK
General Paint Manager
Pittsburgh Plate Glass Co.
Pittsburgh, Pa.

DEFERRING painting, once it has become necessary, is one of the most serious mistakes industrial management can make. A plant without a protective coating of paint is at the mercy of the elements. The roofs rust away, wood weathers and warps, nails pull loose, and nail holes enlarge. Nails rust and the entire structure is weakened, making is possible for moisture to gain access and begin the insidious process of rot and decay. Within a short time the entire structure is in need of both minor and major repairs. This is true of both newly constructed and older buildings. Particularly should the owner of a newly constructed addition make a thorough inspection because a few unscrupulous builders place what amounts to only a "color coat" to hurry completion of the contract. Such coatings afford little or no protection and in a few months it is evident that even the "color" was superficial. (See Figure 1.)

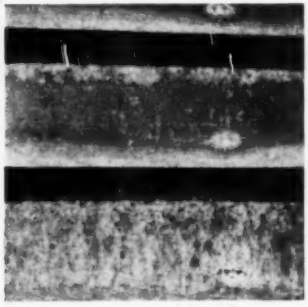


Figure 3. Paints containing lead will darken in industrial areas where sulphur fumes and gases are present. This white siding shows the darkening process after 14 months exposure.

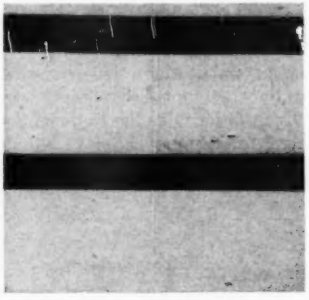


Figure 4. This panel, painted at the same time as panel in Fig. 3, but with a lead-free paint using titanium pigmentation still retains whiteness and protective qualities.

Stop and Take Stock

To be sure of the condition of your plant, a minute inspection should be made in order to correct all structural defects. Joints, copings, siding, and tin work must be sound and secure to prevent entrance and trapping of moisture. Check the foundation. If it is concrete or concrete block and any hair lines are present, cover them with paint. A year or so of frost and weather will convert the hair lines into chasms and cause the concrete to crumble like cake. (See Figure 2.) There are special cement paints available that possess the essential characteristics of workability, durability, and a tack-free film that resist initial dirt collection. Leaking roof gutters and down spouts are always danger points. Excess water gets under the paint and starts rot. The metal should be

Figure 2. Disintegration of cement when poorly maintained. At left, the finish coating is beginning to flake off. This is followed by hair-line cracks which become enlarged as in center picture. At right, cracks lead to erosion and crumbling which have exposed the steel reinforcing band.

CAUSES & CURES

Good maintenance of painted surfaces pays off in cleanliness and efficiency. Keep a running inventory of structural paint needs to guard against rot and decay and as a safeguard against the tremendous cost of building replacement.

cleaned thoroughly and any bare spots covered with rust inhibitive paint. A good metal roof paint with special formulation to prevent rusting and insure bonding should be used.

Check Joints and Window Sash

Check under the cornices and eaves. Often excessive dampness causes decay that is not at once apparent. Here again a special paint with built-in resistance to mildew is needed. A minute inspection of all sash, both steel and wood, is imperative. Sash deteriorates, quickly, particularly with gas heat where condensation is prevalent. The numerous joints and cross-membering, unless adequately caulked and guarded, offer easy access for the destroying fingers of disintegration. Take a look at the junction of the wall and the roof and of the floor junction. Both places provide harbors for water and dampness unless protected. After the structural members and the special points have been checked and repaired, then proceed to the exterior surface of the walls.

If previous painting has been done properly, the surface will be marked with a uniform, dull chalk-like film. In chalking, the film of the paint is wearing away evenly and has no openings where moisture can seep through. If this has happened, the surface in most cases can be prepared for repainting by proper sanding and wiping. A good paint job should last approximately five years, more or less, depending upon the exposure. A good paint job also makes it much easier to prepare the surface for the next painting.

Types of Paint Failures

If the preceding paint job has been done poorly either through inadequate paint or inexpert workmanship, it will reveal itself in one or more of nearly a dozen types of failures. Lots of hard work and painstaking preparation are then necessary before *(To page 28)*

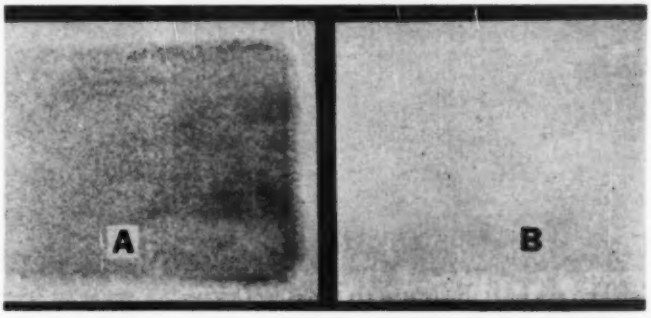
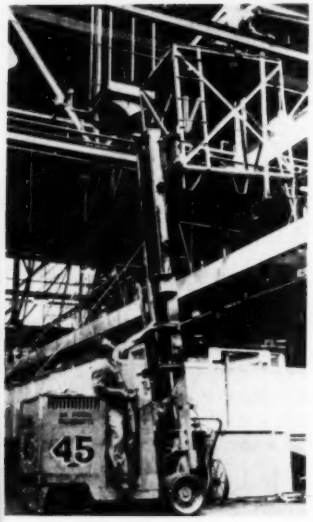


Figure 5. Two pieces of 40-pound paper were coated with an ordinary trim color on Section A, and a vitolized oil trim color on Section B. This photograph shows the undersides of the two test pieces. It is apparent that the coating on Section A has penetrated the paper completely, leaving it stained and discolored. Section B shows how penetration is controlled with vitolized oil, thus keeping the liquids in the paint film where they belong and where they will add life to the film.

CUT OUT THE IDLE

How to organize an industrial power truck fleet. How to schedule maintenance of mechanized equipment. How can trucks contribute to good plant housekeeping.

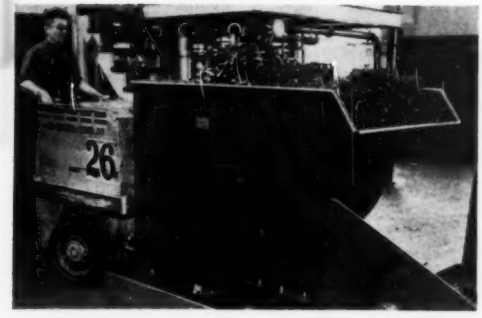


Millwrights make use of industrial trucks in their work around the plant. In this picture a 4,000-lb. capacity, 168-in. lift, fork truck raises a work platform (built on a skid) for maintenance work on overhead monorail line.

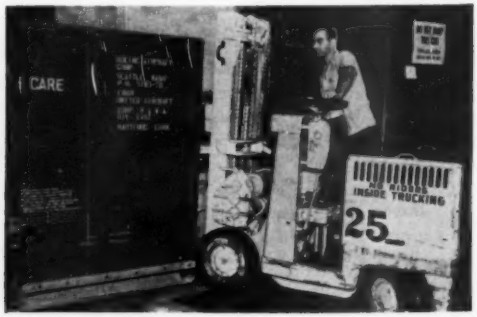
THE close alliance between three phases of an industrial organization—production, maintenance, and safety—are well illustrated by the role that mechanized handling equipment is playing in factories and storage depots throughout the country. Industrial power trucks were developed primarily as an aid to production by speeding the flow of parts and materials and, as a consequence, increasing the plant efficiency. It was soon found, however, that there was another important result of mechanization: it reduced accidents by relieving employees of manual handling with its accompanying high injury rate. And this accident prevention, in turn, gave an added boost to production.

Just as safety keeps the wheels of production turning by preventing accidents to operating personnel, so maintenance aids production by keeping the machines and plant in service. To have industrial power trucks, which provide both safety and efficiency, in good, safe working order at all times, maintenance must enter the picture. Here again there are important side results. Maintenance is necessary to truck efficiency, but the power truck, on its part, can contribute to the maintenance of buildings and equipment. The following shows how one company has organized its truck fleet for maximum efficiency, how it maintains the trucks, and how the trucks are used to aid plant housekeeping.

Employing a fleet of more than 135 storage battery-powered industrial trucks to keep material moving in pace with the needs of pro-



As much as a ton of steel turnings are handled from machine shop production area to scrap salvage department in a single operation by means of special type, semi-automatic dumping bins and platform trucks. Truck's operator, in picture, is about to trip catch on special type of dump-skid, allowing contents to fall through chute in lower right foreground into machine which grinds turnings to chips. This operation is one of many performed about the plant by the Division's Janitorial Service, which utilizes eight of the battery-powered industrial trucks.



One of the outstanding applications of the industrial truck system at Pratt & Whitney Aircraft Division is task of loading these special crates, each containing an engine weighing 3,500 lbs., into freight cars. In this picture the crated engine has been moved into the car by combined lifting and pushing of the truck. The truck operator is "lining up" direction of travel for crate before skidding it to far end of car. This technique enables cars to be loaded in about one hour by three men. Manual loading took four to six men most of a day for job.

MILEAGE

Cylinder head castings for aeroplane engines, in a strapped-to-pallet unit load, are transported from one of the receiving platforms. Loads are tiered two-high in storage by fork truck. Movement to production line is also made by fork truck. Former method of shipment of single castings each packed in a corrugated-board carton required services of large crew of men to handle manually from receipt into storage and thence to production line. Two men, one at receiving dock, the other the fork truck's operator, now handle an incoming shipment in approximately 20 minutes, as opposed to expenditure of about 20 man-hours per shipment required formerly.

duction at its 50-acre production plant in East Hartford, Conn., the Pratt & Whitney Division of United Aircraft Corporation is constantly revising its system so as to take advantage of the newest techniques in material handling. Thus, its intra-plant material movement from receipt, into and out of stores, through production and into outward shipment, is maintained at the peak of efficiency and safety to personnel.

Virtually all work moves through the plant in unit loads on pallets or skids, with a constantly increasing amount of incoming material being received in skid or pallet packages. This permits faster, safer handling and more efficient storage, while both man-power and man-hours have been conserved to a high degree in receiving, production flow, and shipping operations.

In addition, extensive use is made of battery-electric trucks of several types by the Millwright, Maintenance and Janitorial Departments. The first battery-powered truck acquired by the Division—a 4,000-lb. capacity machine, of the fixed platform type, purchased in 1929—remained constantly in service for a period of 20 years.

New units constantly are being added to the Division's fleet of power trucks. By the end of 1949 the Division carried a total of 68 actively-used, battery-electric trucks of the standard types—mainly of the platform and high-elevating fork types—and some 66 of the motorized hand-truck type, as well as three gas-powered trucks. All were being operated on an average of two shifts a day.

Supervisory control of the operation of all industrial trucks is centered in Inside Trucking, a part of the Division's "Department 50," as Intra-Plant Material Movement is known. Inside Trucking also is responsible for the handling and movement of all incoming materials. Raw, semi-finished, or finished parts are received, transported to inspection and then to storage. Later they are delivered to production, or to experimental departments. The shipping of completed engines and spare parts also is a responsibility of this department.

Dispatching System

Originally, and to a large degree, trucks were assigned to specific departments. These supplied their own operators. At the end of the war, studies were made with a view to consolidating trucking operations in the interest of greater efficiency. It was found that while some departments were utilizing their trucks to the utmost, and yet were unable to keep pace with production, other departments were using trucks from only 50 to 75 percent of working hours. In addition, those truckers not assigned to regular tasks, but engaged in "roving duty," were running up considerable "idle mileage" in reporting back from jobs to Inside Trucking for further work assignment.

A telephone dispatching system then was set up. Under this, truckers reported directly to Inside Trucking from the nearest telephone after delivering loads. They then were assigned to other jobs in, or near, the area from which they called. This worked out so well that gradually truckers, who had been on full-time assignment to particular departments, were transferred to the "roving truckers" group. This resulted in a more equal distribution of work. However, it soon was found that many truckers were compelled to walk several hundred feet from their trucks to the nearest *(Page 46)*

FEATURE

This is the third of a series of four feature articles on Materials Handling. The fourth article will appear in the June issue of SAFETY MAINTENANCE & PRODUCTION.

HINTS

By D. E. HOLLINGSWORTH
Lubrication Consultant
E. I. Du Pont de Nemours & Co., Inc.
Wilmington, Delaware

THE primary reason for lubrication of any machine is to limit heat, wear, and rust where metals are in motion. It makes no difference what industry is considered. The process may differ and the equipment design may vary, but, fundamentally, the machines are only mechanical arrangement of elements that don't know whether they are functioning on a mill in a steel plant or a kiln in a chemical plant. What then is the difference in the lubrication of a chemical plant from that of any other industry? The answer is that there is little or no difference in the machines but there may be quite a difference in the ambient operating conditions.

In the chemical industry, the range in the manufacture of a single product, such as a synthetic fiber, extends from enormous compressors to tiny, high-speed spindles. For instance, the compressor may operate at low pressure or at pressures of several thousand pounds. It may be handling a gas that is wet or dry, corrosive or noncorrosive, clean or dirty, hot or cold, or a combination of these conditions. The manufactured product may attack the lubricant or the lubricant, in turn, may retard the chemical reaction or contaminate the finished product. Lubrication in the chemical industry requires that the lubrication engineer have a broad knowledge of the manufacturing process and its equipment, together with a detailed understanding of the lubricants he uses and how to apply them effectively. In addition to the normal mechanical problems, the operating conditions and process must always be considered.

The progressive chemical manufacturer knows that to produce the goods, he must spend money on lubrication and keep it under control. He is vitally interested in it from two standpoints: First, as an essential key to continuous operation, and second, the cost, which must not be taken lightly.

The lubrication field in the chemical industry, as well as any other, naturally divides itself into three broad phases, each to be performed with due regard to economy.

1. Machines must be *designed* for adequate lubrication and for the proper application of lubricants.

2. The proper lubricants must be *purchased* and suitable inventories maintained where needed.

3. The correct lubricant must be *delivered* at the proper time and in proper quantity to the particular spot at each machine throughout the manufacturing areas.

Machine Design

First, the design of equipment for adequate lubrication is profoundly influenced by the competitive nature of our economy. As an example, the manufacturer of the electric refrigerator in our kitchens knows that it is unrealistic to expect the ladies to pay any attention to its oil. So he builds in sufficient lubrication to last the life of the machine. At the other extreme is the highly specialized equipment used by the chemical industry. Lubrication is unlikely to be recognized as the cause of failure of many types of chemical process equipment. So the purchaser needs to have engineers to study the machinery to make sure there is suitable provision for lubrication.

Buying Lubricants

Second, the purchasing of lubricants, specifying the correct grades, and making the right quantity available where and when needed is in itself a major field. There are

FOR GOOD LUBRICATION

Although this article refers primarily to the lubrication of equipment in the chemical industry, the basic principles presented can and should be applied to other types of industry: proper lubrication is vital to maintenance, to safety, and to production.

at least three distinct steps in the purchasing of lubricants:

1. There should be an evaluation of the lubricants necessary for each machine to be operated, together with an estimate of annual consumption.

2. Requirements should be consolidated so that a minimum number of lubricants may be kept on hand.

3. A guide should be established for the purchasing agent to make sure that purchases conform to requirements.

It is necessary that the engineer and purchasing agent cooperate to keep things under control. Everyone is aware of what excess inventory stock will do to a business. Lubricants are no exception!

A few years ago, a large plant about to go into operation was found to have on hand 900 drums and 80 different varieties of lubricants. Included were a dozen barrels of elevator guide rail grease—enough to run the two elevators in the plant for years. A lubrication engineer subsequently specified a dozen types which would meet all needs. He cut the inventory to one-sixth its original size.

Applying Lubricants

The third major lubrication activity is application. This means simply to get the right lubricant to the right bearing in proper quantities at the right time and with the least cost. Failure to do so will mean a breakdown of the sequence of steps which a product goes through in the manufacturing process. The failure of a single link in the chain may curtail production by many tons.

Any company which hopes to keep its maintenance costs down and its production up cannot afford to be without the services of capable lubrication engineers. They need a variety of skills and experience. The application phase alone falls into three distinct categories:

1. The lubrication engineer must establish routines for scheduled lubrication of each machine. These routines aim to make sure that nothing is overlooked.

2. He must handle trouble-shooting as required.

3. He must search continuously for ways to improve production and quality by better lubrication.

The cost of application should have been taken care of to a large extent in the design stage. However, there always remains the problem of keeping lubricating appliances adjusted to the correct delivery rate and of maintaining enough lubricant in them. Also, there are always some machines which require manual attention. This means scheduling!

In one of the plants, that I know of, there are more than 2,750 machines, including pumps, dryers, ball mills, kilns, and many other pieces of chemical process equipment. To lubricate them required more than 1,500,000 inspections a year. After the inauguration of lubrication scheduling, the number of inspections was cut to about 1,200,000—a drop of about 20 per cent. This resulted in savings of several thousand dollars in application costs. But, in addition to that, the number of equipment failures was curtailed.

Trouble-shooting can really test the skill of the lubrication engineer. For example, in one plant an attempt was made to increase the speed of certain machines about 20 per cent to get more output. Trouble developed in the form of rapid failure of oil-immersed gears. Making a comprehensive analysis, the engineers traced the cause to "hunting" of the drive motors and this, in turn, to the turbine governor in the power house. Changes made to the governor stopped the rapid failure of gears and allowed the machine to run at higher speed without excessive maintenance costs. Being able to run the machines at the higher speed eliminated the need for a large plant expansion.

Good Lubrication Promotes Safety

The lubrication engineer needs to be up to the minute on new developments in his field. There is always something new coming along which makes the "impossible" of a year ago into the "routine" of today. This was the case, for instance, with the development and use of suitable lubricant additives which eliminated high-pressure compressor valve fouling, which for many years was regarded as inevitable.

And he must also *(To page 39)*

Ebasco Safety Seminar Stresses Management's Role

W. T. Rogers, safety consultant of Ebasco Services, Inc. (left) looks on with utility men attending the Fourth Annual Seminar in Public Utility Safety, as military personnel at Fort Jay, Governor's Island, explain devices used in testing army drivers. Ebasco & N. Y. University conducted seminar.

TWENTY utility company representatives from United States and Latin American companies were in attendance at the fourth annual seminar in Public Utility Safety recently completed in New York. The seminar, conducted jointly by Ebasco Services Incorporated and New York University, was the fourth of the series arranged by the two institutions.

This year's group was the most enthusiastic of the series according to William T. Rogers, Ebasco Safety Consultant, who acted as director of the seminar. He said that although the series was planned as a course for safety directors, the most recent one turned out to be a training course for supervisory and executive personnel. This is exactly as it should be, he declared, "because safety is definitely the responsibility of the line operating organization." This year's group included eight safety men and twelve operating men—chief engineers, division managers, and division superintendents.

When the course was started, Mr. Rogers recalled, almost the entire class consisted of safety directors. It was set up as a training medium to bring safety directors—both newly appointed and others—up to date on developments in field practices. This year's session included discussions of safety measures in case of bombing attack.

One of the key factors in any safety program, Mr. Rogers said, is the attitude of the chief executive. In cases where the chief executive has been close to the human suffering caused by accidents, the safety program gets very close attention. Where the chief executive has not been close to the suffering, he is not as conscious of the need for a comprehensive safety program.

The men were told that a good way to emphasize the need for a safety program to management is to show them the high cost of accidents. Accidents cost the people of the United States some $7,100,000,000 a year the men learned. They were told about a recent survey of a group of 15 gas, electric and combination gas and electric companies in this country for the purpose of determining their accident costs and the cost of safety work. The companies represent over 76,000 employees with a *(To page 53)*

EVERY MONTH

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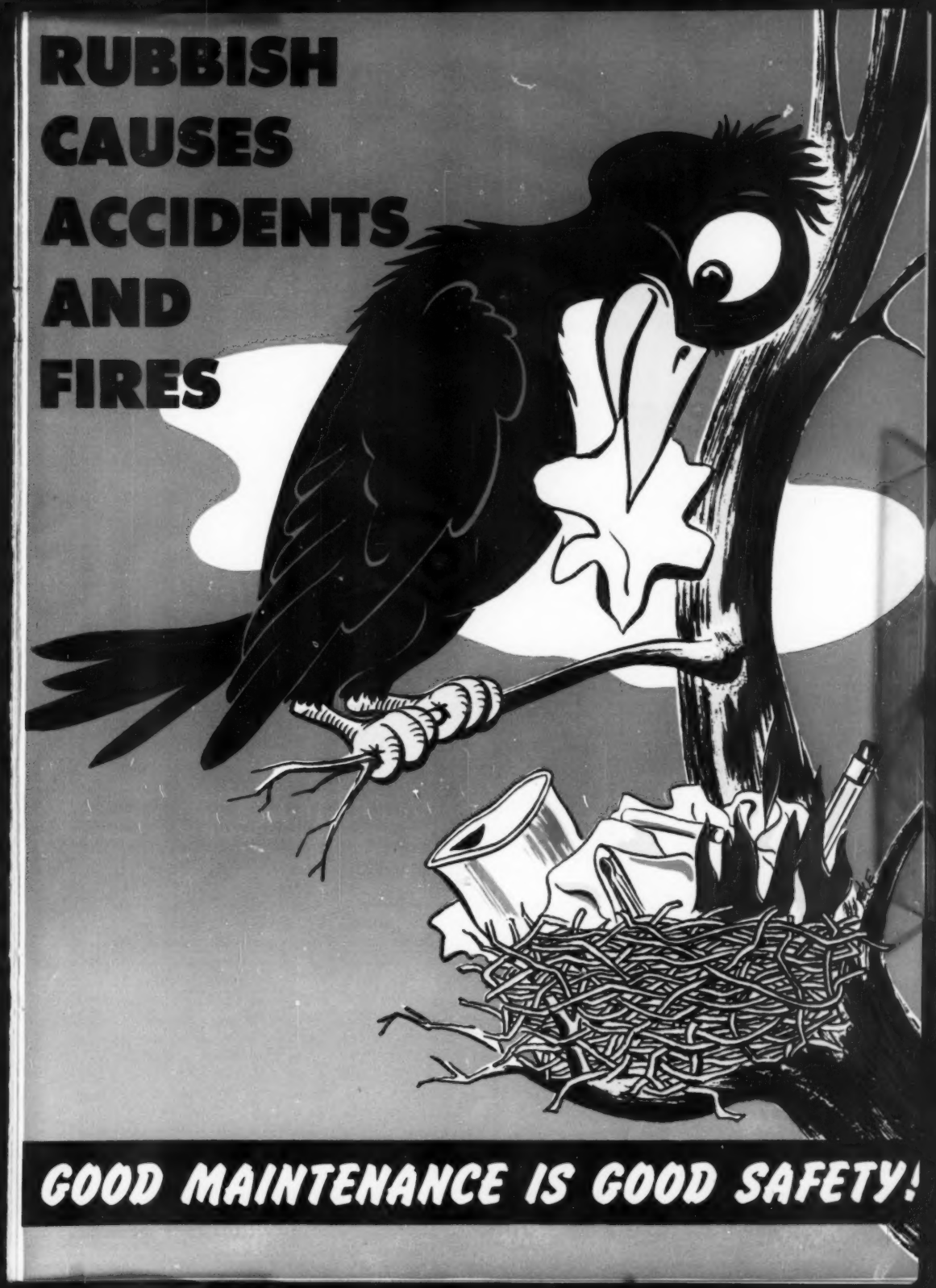

RUBBISH
CAUSES
ACCIDENTS
AND
FIRES
GOOD MAINTENANCE IS GOOD SAFETY!

A tank cleaning crew is about to enter a large storage tank which had contained tetraethyl leaded gasoline at the Cleveland No. 1 Refinery of Standard Oil Company of Ohio. The men are equipped with blower type hosemasks, rubber gloves and boots, light-colored coveralls. Air is supplied the men through hose lines by means of a blower located well away from the manhole at the bottom of the tank so that toxic vapors cannot be picked up at the intake opening.

Oil Refinery Reduces Accidents 65 Per Cent

Combustible concentrations of vapors cannot hide from this "mechanical nose" being used by a foreman. Atmosphere conditions in and around tanks, primary towers, piping and manholes, are checked frequently with a small, portable gas detector meter, to make sure that vapor concentrations are below, and not within, explosive limits. Precautionary measures such as these are part of Sohio's stepped-up safety program for its refineries that has reduced its accident rate well below the industry average.

By providing safety devices and protective clothing and by thoroughly training personnel, safety becomes a habit.

WORKING under the slogan, "Make Safety A Habit," a stepped-up safety program reaching into all branches of the manufacturing end of its business has enabled Standard Oil Company of Ohio to reduce the accident frequency rate for its refineries from 12.87 accidents per million manhours in 1946 to 4.60 in 1950, a reduction of over 65%. Safety education for supervisory, as well as production and maintenance, personnel, and extensive use of safety equipment and instruments in its five refineries have helped Sohio establish and maintain accident frequency rates well below the national average of the oil refining industry, according to Otto C. Haier, the Company's Manufacturing Department Safety Director.

"It is our endeavor to make every employee's job safer by teaching safe work methods and by eliminating physical hazards," Mr. Haier stated in a recent interview at Sohio's Cleveland office. "That was the goal set by E. B. McConnell, Vice President in charge of the Manufacturing Department, when he took office several years ago. To this end our men are being thoroughly schooled in safe practices, in the use of various types of personal protective equipment required for the hazards of their work, and in correcting and reporting unsafe conditions."

Safety engineers at each of the refineries devote a considerable portion of their time to helping supervisors in their efforts to promote safety consciousness and to discover and eliminate unsafe conditions. Mechanical Department supervisors conduct safety meetings with their men once each week. The material used in the discussions in many cases has been supplied by the Safety Engineer. Process Department employees are reached through such means as bulletin board releases, personal *(To page 51)*

Eye Safety Pays For

FEATURE

This is the first of four feature articles concerned with Eye Protection. The next three articles of the series will be published in the June, July, and August issues of SAFETY MAINTENANCE & PRODUCTION.

EYE protection has been available to American industry for many years now. From the necessarily crude beginnings when protectors were designed primarily for impact hazards, today's eye-protective equipment has become highly specialized to prevent injury by the diverse eye hazards of industrial production. At the same time, designers of the equipment have recognized the fact that these protectors are things that *must* be worn *by people*: they have streamlined the goggles, and made them light in weight and comfortable to wear. In short, the manufacturers of the equipment have been able to overcome the worker's objections to the devices, while still giving him a very necessary guard for preventing injury to one of the most vital parts of his body. This combination of safety and acceptability is a noteworthy achievement, because goggles which are available but not worn are as bad as, if not worse than, no goggles at all.

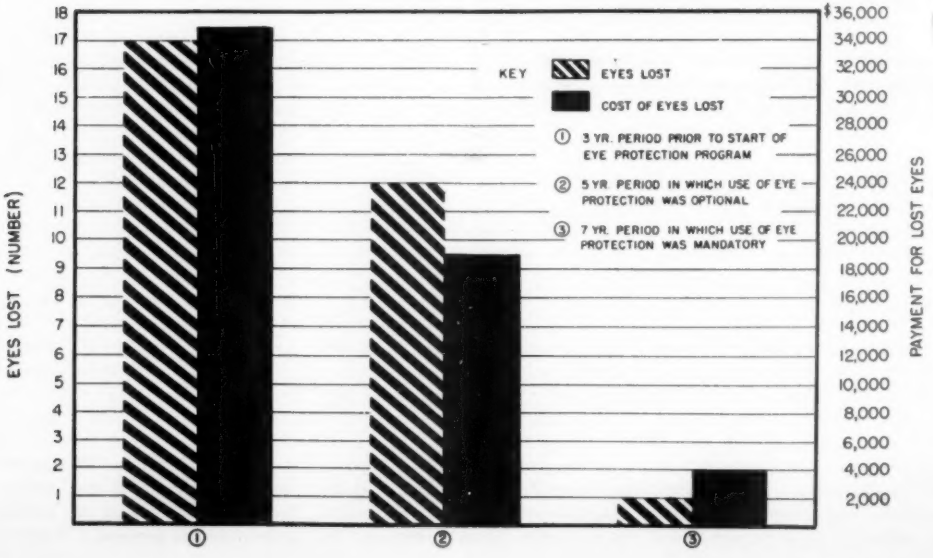
With the recognition of what is acceptable to the worker in relation to his specific job, and with eye-guarding equipment readily available to industry as a whole, there is, however, still the question of whether these protective devices are available to each worker as an individual. It is true that the education and training of workers through accident prevention programs has made remarkable advances; and it is also true, especially during the past ten years, that some companies have established constructive eye protection programs, ranging from the optional types to the mandatory. But the fact remains that many executives are not aware of the actual dollars-and-cents results of these programs and the far-reaching implications of them.

The accompaning charts indicate the results of an eye protec-

CHART **A**

SHOWING COMPARISON BY PERIODS IN WHICH THE EFFECTIVENESS OF OPTIONAL AND MANDATORY EYE PROTECTION PROGRAMS ARE MEASURED IN EYES LOST AND COST OF SUCH INJURIES AGAINST A PERIOD OF NO CONTROL

PREPARED BY
AMERICAN OPTICAL COMPANY
SAFETY ENGINEERING SER. BUR
T.A.W. 11-19-49


EYES LOST (NUMBER)
PAYMENT FOR LOST EYES
KEY
EYES LOST
COST OF EYES LOST
① 3 YR. PERIOD PRIOR TO START OF EYE PROTECTION PROGRAM
② 5 YR. PERIOD IN WHICH USE OF EYE PROTECTION WAS OPTIONAL
③ 7 YR. PERIOD IN WHICH USE OF EYE PROTECTION WAS MANDATORY
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
$36,000 34,000 32,000 30,000 28,000 26,000 24,000 22,000 20,000 18,000 16,000 14,000 12,000 10,000 8,000 6,000 4,000 2,000
① ② ③

Itself

Is an eye protection program effective?
How much does such a program cost?
Is eye protection worthwhile?

tion program in the shops of a leading railroad. At first, the shops were without an eye safety program. Later, eye protectors were introduced, but the wearing of them was left to the individual. After a successful experiment with a compulsory plan in one division, the mandatory wearing of goggles and shields was gradually extended to the other shops.

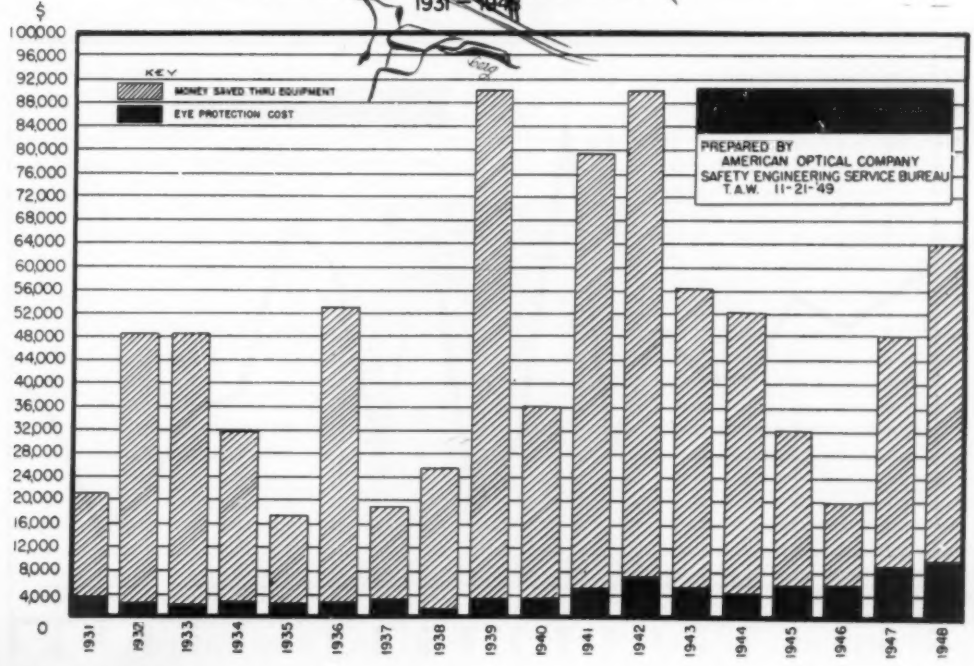
The charts themselves are self-explanatory, but it is suggested that anyone interested in a practical method of reducing production costs will find some astonishing facts outlined graphically in them.

Chart A shows that eye protec-

Charts prepared by:
THOMAS A. WALSH, Mem. ASSE, Mem. ASME
Manager, Safety Engineering Service Bureau
American Optical Company

CHART B

SHOWING MONEY SAVED THROUGH PREVENTED EYE LOSSES BY USE OF EYE PROTECTION EQUIPMENT AND MONEY EXPENDED YEARLY FOR SUCH EQUIPMENT 1931 – 1948



tion programs are effective both in terms of eyes lost and in the cost of such injuries to the company. It also goes a step further by indicating the remarkable savings made when *all* workers are *required* to wear eye-protective equipment, as compared to a program which is on a voluntary basis. The startling decrease in the number of eyes lost in the three phases of the chart is even more remarkable when one realizes that the first period (when there was no eye protection program) covers only *three* years; that the second period (when there was optional eye protection) covered *five* years; and that the lines for the third period (when there was mandatory control) show the actual number of eyes lost and the actual cost of those injuries over *SEVEN* years.

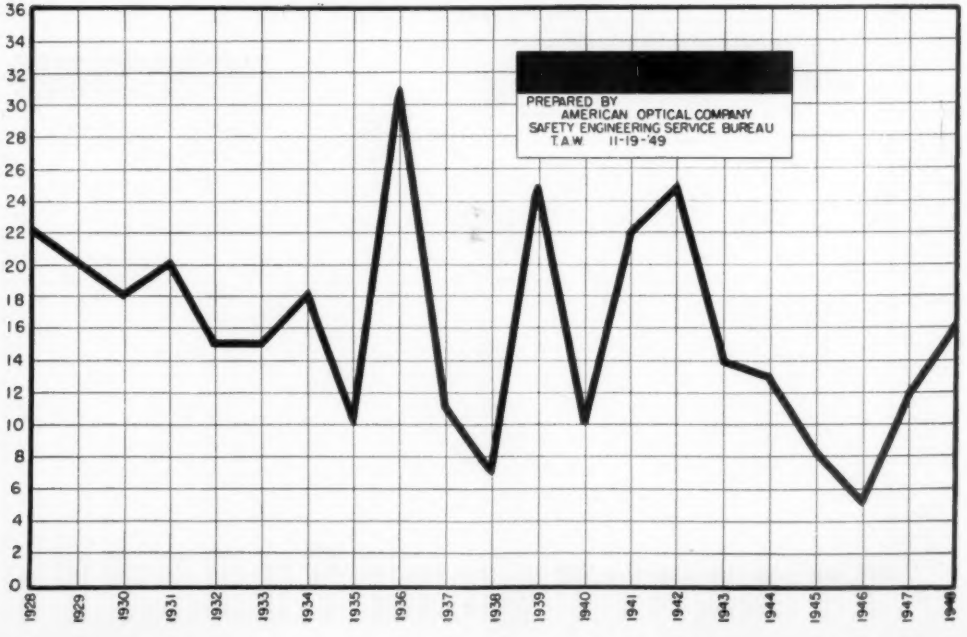
While Chart A outlines what an eye protection program established for all workers can do, Chart B shows the amount of money saved each year through the wearing of eye protection equipment and the amount of money spent for the equipment in order to make that saving. It should be noted that in every year the amount saved was much greater than the amount spent. Even in the year when the ratio was the lowest, 1946, the company spent about $6,000 for eye protection and thereby saved about $14,000 by preventing eye injuries. It is also interesting to note that the greatest amounts of money were saved during the boom periods when the company payrolls included employees who were less experienced and therefore more susceptible to accidents.

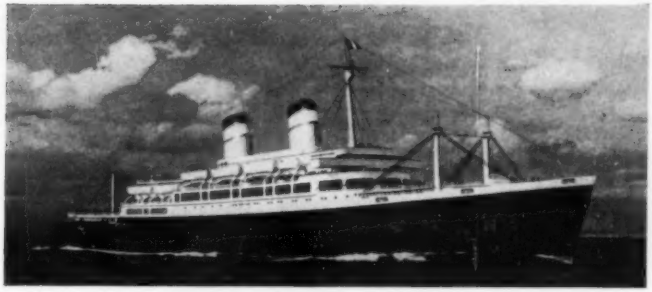
Even the most hard-headed of business men cannot overlook the importance of the humanitarian aspects of eye protection programs and the value of such programs to morale. They will find that employer-employee relationships are reflected even in the cold world of business statements. Were it not true that eye protection lowers production costs, it would still be evident that eye protection programs are worthwhile on the basis of preventing injury to plant personnel. Chart C shows the number of eyes saved each year through the use of protective equipment, and behind the graph line is the larger picture of employees made aware of the fact that the company does take a personal interest in their welfare. Although the graph line has its ups and downs, it is noticeable that the trend during the last seven years, when the mandatory program has been in effect, has been definitely downward.

The experiences of the railroad, as indicated in these charts, show: 1. that eye protection programs are effective, especially when they apply to all personnel on a compulsory basis; 2. that these programs actually save the company money; and 3. that they do accomplish their purpose—to protect the worker's productive capacity and to save him from losing his sight.

CHART C

SHOWING NUMBER OF EYES SAVED
THROUGH THE USE OF EYE PROTECTORS
1928 — 1949





"S.S. Independence," newest ship in the American Merchant Marine, sets new safety and comfort records.
Photo American Export Lines.

A New High for Safety at Sea

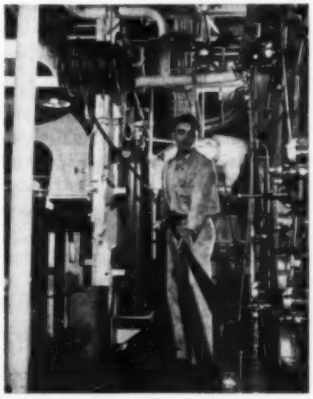
Latest luxury liners set new standards of safety afloat.

PROBABLY no ship ever had a more successful introduction to the public, or deserved it more, than the "Independence," American Export Lines' luxury liner now in Mediterranean cruise service. Along with her sister ship the "Constitution," the "Independence" sets new standards for speed, comfort and safety in self-sufficient ocean travel.

The ships were built at the Quincy Yard of Bethlehem Steel Corporation. Of 26,000 gross tons each, they are 682 feet long and the fastest ships in American maritime service. The interior design was by Henry Dreyfuss, noted industrial designer.

From New York, her home port, to Gibraltar, Cannes, Genoa, Naples and back again, the 1000 passengers on the "Independence" will travel in surroundings as completely safe as modern engineering and equipment can make them. Both of the American Export's new liners incorporate every known device to handle emergency situations. Their design and construction include the finest protective equipment, developed as a result of past marine disasters and war-time experience.

Fire, perhaps the primary terror at sea, received full attention from the ships' designers. Fire safety was approached in three ways. First, fire-resistant materials and limited combustibles were used in construction; second, elaborate detection and alarm equipment was installed; finally, extinguishing equipment capable of overcoming any probable fire was placed aboard.



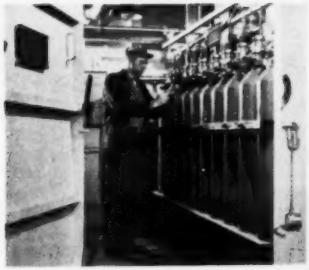
The boiler room has this carbon dioxide hose reel system for auxiliary fire fighting. It is serviced by two 50-pound cylinders seen behind and to the left of the crew member.

The ships' fire-resistant construction means that most fires will remain localized for a considerable time. This allows fire brigades to reach the scene before the blaze can spread or get out of hand. Actually, lack of combustibles in most locations suggests that fires might burn out even if they receive no attention.

Fire-Controlling Construction

The "Independence" and "Constitution" are divided into seven main verticle zones by six bulkheads. The superstructure and upper portions of the main hull are further divided by the decks into eight horizontal zones. Bulkheads and decks will prevent the passage of flame, and prohibit heat transfer of over 325 degrees F. Each zone's stairwells are completely enclosed and no combustibles are used for stairways or corridors.

Doors throughout the ship live up to the same fire-resistant standards as their adjoining bulkheads. Those passing through main vertical bulkheads and stair enclosures, except power operated watertight doors, are fire doors of the self-closing type. All watertight and fire doors can be closed automati-



Sixty 50-pound carbon dioxide cylinders for fire extinguishing are located in this special room just forward of the engine rooms. The system can discharge cylinders into either engine room, release cylinders into the auxiliary machinery space, or into any of the cargo and storage spaces sampled by the smoke detecting system. Operation of the system sounds warning alarms, shuts off ventilation automatically, and alerts the fire control room.

A ship's officer inspects the "master" gyro compass located in a locked compartment which is infrequently entered. As electrical equipment always presents a potential fire hazard, a detection and extinguishing system was installed. Should fire flash, the equipment sounds an alarm automatically, and the room is flooded by the carbon dioxide contained in the cylinder (left) which discharges through the nozzle attached to the bulkhead (center).

cally from the fire control room or manually at location.

Fire doors have ports at their bases to permit passage of fire hoses and provision has been made to allow fire extinguishing water to flow by gravity to lower decks and pass off the ship by drains. This prevents the accumulation of water on upper decks which could upset stability.

Alarm System

An electric fire-detecting alarm system contains approximately eighty manual and seven hundred automatic thermostats arranged in about sixty zones. When actuated, an alarm is sounded in the fire control room, a bell rings in the emergency crew quarters, and in both engine rooms.

Eighty-five watch clock stations are also distributed throughout the ships which are patrolled hourly when passengers are aboard.

A complete smoke detecting system was provided to protect cargo spaces, bo's'n's stores, mail room, lamp room, and paint and oil room. Air samples from twenty-six such spaces are drawn continuously to a cabinet in the fire control room. The spaces protected are either infrequently inspected as a result of their use, or contain materials most likely to cause fires. According to Walter Kidde & Company, Inc., if a sample from any of these 26 spaces contains smoke, gongs ring in the fire control room and in the engine rooms. The exact compartment containing smoke is also designated.

The general alarm system consists of over 100 bells operated simultaneously from the bridge and is complemented by an emergency public address system with fifty-four speakers.

Fire Fighting Equipment

The ships employ two primary methods of fire fighting—water and carbon dioxide. More than 100 fire hydrants equipped with hoses of suitable length are distributed aboard. Engine room hoses have spray nozzles.

The main carbon dioxide system comprises sixty 50-pound cylinders located in a separate room located just forward of the engine room. The system can be used in three ways: (1) Release of all discharging cylinders into either engine room by activating pull boxes located at the entrances of the rooms; (2) Release of desired number of cylinders into the auxiliary machinery space manually from the cylinder room; (3) Release of groups of cylinders, through controls on the main deck, into any of the cargo and storage spaces sampled by the smoke detecting system. Operation of the Kidde system, in whole or in part, sounds warning alarms of the imminent flooding of the space by carbon dioxide, shuts off ventilation automatically, and alerts the fire control room.

In addition to the central carbon dioxide system, certain other ship's spaces are equipped with independent systems. The emergency generator room has five 50-pound cylinders. The gyro compass room has one 50-pound cylinder, and the motion picture projection room contains two. These are controlled by pull boxes just outside the rooms protected. Release of the carbon dioxide signals warnings to both engine rooms, the fire control room, and within the danger space itself. In each case, ventilation is automatically shut off.

When any of these carbon dioxide systems operate, the inert gas rushes through piping and totally floods the compartment to which it is directed. The carbon dioxide smothers the fire by excluding oxygen, which supports combustion. Of particular importance is the fact that this gas cannot harm machinery or electrical equipment, and leaves no mess to be cleaned up after the fire is out.

Main boiler rooms are supplied with two 50-pound carbon dioxide cylinders equipped with fifty-foot hose reels. These are released manually at location.

Two portable 15-pound carbon dioxide extinguishers are located in the main engine room and one in or near each refrigerating or other auxiliary machinery space, theater stage and automobile hold. Eight units are located in the ship's galleys. Fifty $2\frac{1}{2}$-gallon soda-acid portables are strategically placed throughout the ship.

Pictures by courtesy of Walter Kidde & Company, Inc.

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Un-Toe-Ward Hazards

L. A. Moran, Safety and Personnel Director of the Riverside Metal Company, looks on as Pauline Goralski helps Julius Chmielenski pick out the safety shoes which will give him the greatest protection in his job as a Bull Block Operator. Since Pauline has taken over, safety shoe sales have increased 50%, while there has been more than a 25% decrease in lost time caused by accidental toe injuries.

AS IN any industrial operation, un(toe)ward hazards have been the challenge for many years. At The Riverside Metal Company, L. A. Maron, Safety and Personnel Director, has been responding to just such a challenge and in so doing, toe accidents have been reduced by more than 25%.

It all started about a year ago when records revealed a relatively high incidence of toe accidents which could have been prevented by safety shoes. Lou Maron studied the problem, and instituted a program appealing to the special local situation.

In surveying the Metal Company, Lou knew he had to consider two main units: Riverside's specialty non-ferrous metal Rolling Mill and the Keystone Watch Case Division. Although the importance of their problems was much the same, each unit had to be considered as a separate area.

Three principal reasons were uncovered for the safety deficiency: (1) Ignorance of the existence and purpose of safety shoes, (2) Rumors of poor fittings from persons with foot troubles, and (3) A language difficulty. (Many workers came from Polish and Italian parentage.)

Once defining his problems, Lou appealed to his safety committees to spread the word. With these men indoctrinated and working on the safety side, Lou planned and wrote a personal note to each employee who worked with heavy metal or equipment. He pledged Company support in this effort to save anguish and pain and money. But perhaps most important, he said for the benefit of those hard-to-fit individuals: "If you have not been getting good service from your safety shoes; if they do not fit properly or are uncomfortable, we want you to tell us about it. We assure you that we will make every endeavor to correct such conditions."

The language problem remained as Lou's last headache, but even this was to be overcome. He told his troubles to his secretarial assistant, Pauline Goralski. And now in addition to her duties as receptionist, personnel secretary and record keeper, Pauline is Safety Shoe Saleswoman, because of her gracious manner and her facility in speaking Polish and understanding of Italian.

The plan apparently is working, since statistics show that Safety Shoes Sales at The Riverside Metal Company have increased by more than 50%. Notwithstanding, Pauline is not without her "little" problems.

She learned about the different types of shoes: both electricity and oil resistant. She studied the differences between bluchers, oxfords and cord shoes. Now, with most of her job reduced to a routine, Pauline can take more time with the exceptions: difficult-to-fit employees. Over one of her exceptions Pauline is still chuckling. It's the story of a worker who had to have a special last made for his size 14. It was quite a problem, she agrees, but Pauline also claims to have another satisfied customer, and another worker at The Riverside Metal Company protected against un-(toe)ward hazards.

Paint Failures . . . Causes & Cures

(From page 15) these previous mistakes are corrected and the surface made suitable for repainting. These failures are usually readily identifiable. The major ones are:

1. Chalking. Premature chalking is caused by an early disintegration of the paint. It can usually be seen by casual examination, as the surface assumes a dull "chalky" appearance very early in its life. Causes of premature chalking are either a poor paint with too little oil, which results in a porous film, or faulty application such as painting over an improperly prepared surface or painting in freezing weather. This type of trouble is not hard to correct if caught before the film wears down to the wood. Often a thorough wire brushing will suitably prepare the surface. It is important then to use a paint that has the right type and right amount of oil. Paints with vitalized oils penetrate the surface to the right depth to gain adhesion without undue spreading and help for a non-porous, protective film. (See Figure 5.)

2. Spotting. This failure is readily apparent to the eye. The paint has a speckled appearance of light and dark spots of varying sizes. (See Fig. 6.) Probably the most frequent causes for spotting is unequal oil absorption of the surface. Oil is the life of paint; without oil there is nothing to resist the elements except a thin coat of pigment. Thus when oil is absorbed more readily in one place than in another, a flattening of gloss and

Fig. 6. SPOTTING is caused by unequal oil absorption. A poor paint will soon show its weakness by extensive spotting. Adequate sealing is the secret of a good job.

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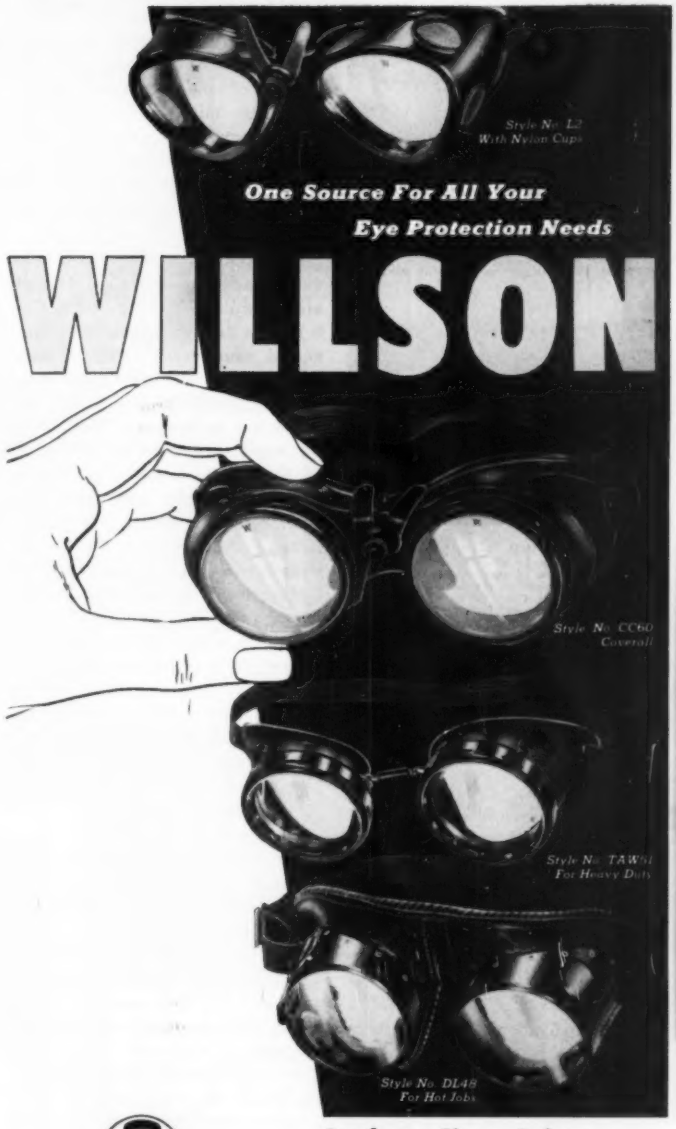

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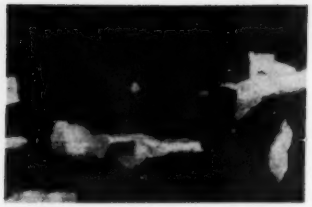

Fig. 7. BLISTERING is a failure due to mechanical defects in building construction for which paint is unjustly blamed, such as seepage through the structural material.

Fig. 8. CHECKING is not always too serious. It may be due to poor workmanship or the use of improperly formulated materials. Prevention involves allowance of sufficient drying time between coats (3 to 7 days) and proper formulation of both undercoat and finish coat.

Fig. 9. CRACKING is caused by improperly made paints which dry too hard for the conditions of the particular job. The use of undercoats and finish coats of equal elasticity, possessing equal ability to expand and contract, will prevent this.

a color change is noted. Sometimes this is due to skimping or trying to make one gallon of paint cover an area where two gallons are needed. If this condition is present, the surface should be wire brushed and sanded and a special prime sealing coat applied.

3. Blistering. This is a type of failure for which paint is unjustly blamed. It is usually due to construction or application defects. The blisters are caused from water which seeps up through the painted surface and pushes off the paint film in blisters that break and peel. (See Fig. 7.) This condition is found on wood, cement and stucco. The remedy is costly, involving the removal of all paint and correction of the structural faults. Sometimes blistering is caused by painting over damp surfaces. The cure is the same—removal of all paint, permitting the surface to dry thoroughly and then another coat of paint.

4. Checking. Small, not-too-obvious cracks in a new coat of paint are known as checking. (See Fig. 8.) This failure is not so serious and is usually the result of poor workmanship or improperly formulated materials. The finish coat might not be properly formulated for application over an undercoat of the required elasticity or the undercoat might not be hard enough for the finish coat that is being used. To eliminate such possible failures, the user should check the quality of all coats of paint and not try to skimp on any of them. Many times normal weather wear causes these cracks to disappear. If not, the surface should be wire brushed and repainted. Sufficient drying time must be allowed between coats; best results will be obtained by allowing more than 72 hours between coats.

5. Cracking. This takes place when poorly made paints are used or when paint dries too hard for the conditions on the particular job. Fine cracks permit the water to enter and seep throughout the wood, thus it is a serious defect. (See Fig. 9.) The pressure of the water then goes outward causing the edges of the paint to curl up, flake and scale off. When this has happened the only cure is wire brushing and a new paint job with all coats of equal elasticity, possessing equal ability to expand and contract.

6. Alligatoring. Just before a paint film ceases to give adequate protection, it takes on the appearance of an alligator's skin. (See Fig. 10.) It is an advanced state of checking where the cracks have reached down through the film to the bare wood. It is usually due to an improperly built up paint film. When this occurs there is only one thing to do—start all over again by removing the old paint. The new paints should be carefully chosen and their life-giving oil content checked. Paints that have too much thinner or water will cause this and other failures.

7. Staining. These, like paint spotting, are easily identified and include a number of different type blemishes from various causes. Sometimes it is from water dripping from a poorly painted gutter or pipe. Sometimes mildew attacks portions of the paint. Where this happens, usually in shaded, damp areas, the surface must be washed with trisodium phosphate in water and special compounds must be used in paints. Sometimes when the surface has been painted while damp, the water rising to the surface carries a bit of coloring matter with it which is absorbed by the paint. This must be cleared, the area permitted to dry and then repainted. Knots in wood sometimes secrete resins which cause stains. The cure is to carefully seal these knots to prevent the resin from coming through.

8. Wrinkling. When *(To page 40)*

Fig. 10. ALLIGATORING is an advanced form of checking causing the film to take on the appearance of alligator skin. It is usually due to improperly built up film.

Fig. 11. WRINKLING, which is a finish with a leather-like texture, can be caused by too heavy a coat of paint, by improper brushing, or from a wrong combination of oil and pigment in the finish coat.

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For oxygen-deficient and highly toxic atmospheres. Chemox . . . Demand Type . . . and 1-hour Apparatus.

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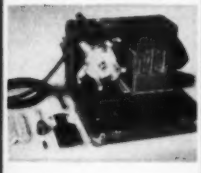

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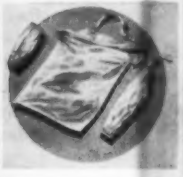

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MSA

SAFETY EQUIPMENT HEADQUARTERS

TRANSPORTATION

Visual Skills of Drivers

IN A drive to reduce highway fatalities, North Carolina is going to determine scientifically the visual skills of all its drivers. Starting July 1, applicants for drivers licenses and those seeking renewals will be required to have their eyes checked on a visual testing instrument. Developed by Bausch & Lomb Optical Company and Purdue University, the instrument has been used for several years to measure visual aptitudes of over 4,000,000 industrial workers and assign them to jobs they are qualified to perform efficiently and safely.

North Carolina is the first state to use the instrument which tests 12 different visual skills. Tests include muscular balance, depth and color perception and acuity at both near and far distances. Acuity performance is determined by identifying the position of checkerboard symbols inside the instrument.

Termed as "fool proof" by hundreds of companies now using the instrument, the Ortho-Rater eliminates the possibility of memorizing letters on conventional eye charts, which, according to E. R. Peel, North Carolina's Chief License Examiner, "has enabled some weak-eyed drivers to slip by in the past."

Drivers who fail the tests, it was pointed out, will be advised to see an eye specialist, who may either prescribe eyeglasses or visual training. With proper eye care a large percentage of these will be able to meet visual requirements set by the North Carolina Motor Vehicle Department.

Besides determining individual visual skills, the test results will be compiled to determine what visual factors contribute to inefficiency and accidents while driving a car. Dr. D. J. Moffie, head of the Psychology Department at North Carolina State College, will direct the state-wide research program using data collected by the motor vehicle department.

"No one knows as yet just what the relationship is between highway accidents and vision," Dr. Moffie says, "but next year we will have data available on 1,300,000 drivers, a situation that has never before been equaled. Such data," he adds, "may result in establishing new visual standards for the issuance of drivers licenses, and identify those drivers whose vision makes them risks on the highways."

Contracts for the use of 100 of the instruments have been signed, and all of North Carolina's license examiners will receive instruction in testing procedure at a special course which will be given within the next few weeks. The instruments will be equipped with traffic sign symbols to test applicants on identification.

Fleet Maintenance Course

NEW YORK UNIVERSITY is offering its first annual course for Motor Vehicle Maintenance Supervisors from May 7 to May 11. This course is especially designed for Fleet Maintenance Supervisors, Shop Foremen, Inspectors, and Maintenance Engineers for insurance companies, Training Directors and executives concerned with the problems of efficient fleet operation.

The course is under the direct supervision of the Center for Safety Education, which is the University's adult unit. Speakers in the various aspects of preventative maintenance will conduct the course. It has for its objective a practical and timely program of instructions leading to higher dependability and performance from equipment with sound operational practices.

Dr. Walter A. Cutter, Assistant Director of the Center for Safety Education and Assistant Professor in Industrial Safety will direct the course. Mr. Theodore McGill, President of the Society of Fleet Supervisors Inc. and Mr. James C. Eadie, Center for Safety Education, will serve as coordinators.

Detailed information concerning the course can be had by contacting the Center for Safety Education, New York University, Washington Square, New York 3, N. Y.

Traffic Accidents Increased

IN THEIR 1951 booklet of street and highway accident data, The Travelers Insurance Companies record a total of 35,500 fatalities last year compared with 31,800 in 1949. The report indicates that 1950's toll of killed is the highest since 1941's all-time record of 40,000.

This discouraging picture reverses a post-war trend during which, although the numbers of registered motor vehicles increased steadily, the number of persons killed annually decreased.

In 1950, there were 3,700 more persons killed than in 1949 and there were 235,800 more persons injured last year than in 1949. Among that number of injured persons, no one knows how many more might have died were it not for expert medical attention given promptly. Nor does anyone know how many of those injured will spend the rest of their lives under physical handicaps which rival death itself as tragedies.

SAFETY

Traffic Fellowships

YALE UNIVERSITY'S Bureau of Highway Traffic is now accepting applications for eleven graduate fellowships for the study of traffic engineering during the academic year 1951–52.

The Bureau, established at Yale in 1938, is a center of graduate training and fundamental research in highway matters. Each year it trains between 20 and 35 men for professional careers in highway operations and traffic engineering.

Nine of the eleven graduate fellowships, Mr. Matson pointed out, are made available through a grant from the Automotive Safety Foundation. Another is sponsored by the American Transit Association. The other award is the Rand McNally Fellowship in Traffic Engineering, offered for the first time since its creation last year by the Rand McNally Company of Chicago, Ill.

Each of the eleven fellowships provides approximately $1,400 to cover living expenses and tuition for one year, as well as a stipend for individual research projects. The awards are open to men who have been granted a degree in some branch of engineering from an accredited college.

The curriculum for the coming year includes the following courses: Highway Traffic Characteristics, Highway Traffic Regulations, Traffic Design, Traffic Planning, Traffic Administration and Practical Traffic Problems. In addition, each student is required to develop a report based on research, which indicates his capacity for advanced work and represents a contribution of original value in highway traffic.

Special forms for the Fellowship applications and additional information may be obtained by writing to the Director, Bureau of Highway Traffic, Strathcona Hall, Yale University, New Haven 11, Conn. The closing date for applications is June 1, 1951.

Fleet Conference at Penn State Postponed

THE conference for Top Management of Motor Fleets which had been scheduled for June 14 and 15 on the Penn State Campus has been postponed because of the later announcement that the President's Highway Safety Conference will be held on those dates.

The new dates for the conference are October 4 and 5. The aims of the conference are to improve efficiency of operations and public relations by the proper use of personnel and equipment.

Safe Driving Leaflets

TWO new traffic safety leaflets, "Will You Be Victim X?" and "A Daily Reminder," have been published by the accident prevention department of the Association of Casualty and Surety Companies as part of its intensive campaign this year to reduce automobile deaths and injuries, which in the last 15 months have shown the sharpest increases since World War II ended. Both leaflets are being distributed through the Association and its member companies.

With the 1951 traffic toll mounting at a faster rate than in 1950, making virtually certain the death of the millionth traffic victim since 1900 by next December or sooner if the higher rate continues, the leaflet on the widely-publicized "Victim X" makes a timely appeal for caution by all who drive or walk.

The second leaflet is aimed at speeding and drinking-and-driving as the two major causes of increased traffic deaths and injuries. It makes a direct appeal to motorists to pledge themselves to "always drive at an intelligent rate of speed" and never to take the wheel of a car after drinking. Continuing the Association's 1950 campaign against these two highway evils, the leaflet reproduces in the form of a driver's identification card and current calendar the "daily reminder pledge" adopted recently by the National Committee for Traffic Safety. The calendar-pledge card can be used as a constant reminder of the motorist's responsibility to prevent accidents that are causing a huge loss of manpower in a period of national emergency.

Single copies of the leaflets may be obtained without charge from the accident prevention department of the Association of Casualty and Surety Companies, 60 John Street, New York 38, N. Y. Although both leaflets are being distributed as a public service through the Association's member companies, the traffic safety messages are designed to carry name imprint and an additional message on the back cover and quantities are available at cost of production to organizations desiring to participate in their distribution.

Julien Harvey Honored as Safety Leader

THE Institute of Traffic Engineers has unanimously elected Julien H. Harvey, pioneer traffic safety specialist and manager of the accident prevention department

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LISTEN TO THE PLANT MANAGER'S TUNE..... WHEN SAFETY MEASURES ARE SUGGESTED...
I TOLD YOU BEFORE AND I'M TELLING YOU AGAIN.... I'M NOT IN THE MARKET FOR SAFETY EQUIPMENT! MY ONLY INTEREST IS PRODUCTION... NOTHING ELSE! GOOD DAY, SIR... AND SHUT THE DOOR QUIETLY ON YOUR WAY OUT!
PRODUCTION MANAGER
X.Y.Z. SAFETY EQUIPMENT
BUT..... WHEN AN ACCIDENT HAPPENS.... HIS SONG GOES LIKE THIS .....
IT'S NO WONDER THIS IS YOUR THIRD ACCIDENT THIS WEEK! LOOK AT THOSE DIRTY FLOORS, POOR LIGHTING, NO SAFETY EQUIPMENT! MUST I THINK OF EVERYTHING? YOU KNOW WE CAN'T HAVE EFFICIENT PRODUCTION AND ACCIDENTS TOO!
BUT CHIEF, YOU CUT DOWN ON SAFETY AND HOWL FOR PRODUCTION!
THANKS FOR THE THEME: Subscriber, Thos. F. Clark, Conservation Services, Zurich General Accident, New York

INVITATION: Readers sending in usable ideas for these cartoons will receive acknowledgment for them in the magazine and will be given the original cartoon-drawing with our compliments.

of the Association of Casualty and Surety Companies, an honorary member for his outstanding contributions to the profession of traffic engineering, it was announced in New Haven, Conn., by Harry E. Neal, president of the Institute.

"In the opinion of the board of directors, no other person living today has contributed as much of his time, personal effort and financial backing to the development of the traffic engineering profession through the Institute of Traffic Engineers," said Mr. Neal. "It is the consensus of the board that the Institute enjoys its prestige in the engineering field today largely due to his personal interest and support. It is in recognition of Mr. Harvey's outstanding contributions to the profession that the board has taken this action."

Only four other living Americans have been similarly honored by the Institute. Present living honorary members are Paul G. Hoffman, president, Ford Foundation; Thomas H. MacDonald, Commissioner, U.S. Bureau of Roads; Charles J. Tilden, professor emeritus, Yale University, and Andrey A. Potter, dean, School of Engineering, Purdue University. Honorary members are limited to 10 by the Institute's constitution and by-laws.

The Institute has grown to a professional group of more than 650 members since its organization in 1930. Its aim is to develop the science of traffic engineering in every state and in every city of more than 25,000 population.

Mr. Harvey, originator of the nation's first complete community safety program in Rochester, N. Y., in 1918, first defined the principle that education, engineering and enforcement—the now-famous "three E's" of safety—are the foundation of effective accident prevention work. During the past quarter century this concept has become the keystone of modern techniques in traffic and industrial safety.

Since he joined the Association of Casualty and Surety Companies in 1938 to direct its accident prevention efforts, Mr. Harvey has initiated many important projects which have brought the traffic engineer to the forefront as a key factor in reducing the toll of automobile deaths and injuries.

Mr. Harvey was a co-founder of the Center for Safety Education at New York University, which also places strong emphasis on the traffic engineer's important role in accident prevention.

In 1946, when President Truman decided to convene the President's Highway Safety Conference, Mr. Harvey was one of the nation's ten outstanding traffic experts who were called to Washing-

ton to organize the conference. He is still in its technical advisory group.

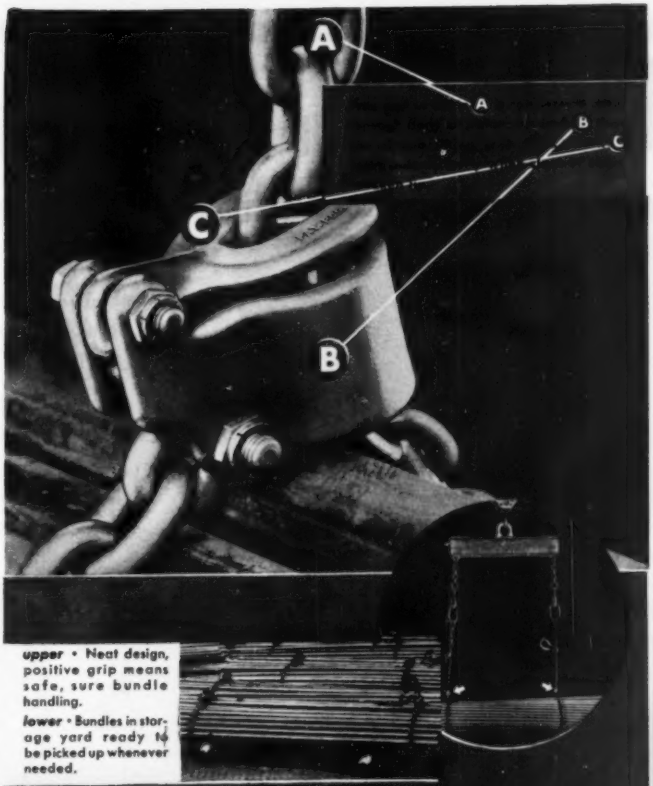
Mr. Harvey, born in Marshall, Mo., abandoned a law career in Kansas City, shortly after he was admitted to the bar there, to make safety his life's work. At the request of the Traction Company of Kansas City, he organized a program to reduce and prevent accidents, which was so successful that in 1916 he helped organize the Kansas City Safety Council and became its first president. After his further success led to the forming of the Kansas State Safety Council he was asked by the National Safety Council to organize the nation's first complete community safety program in Rochester, N. Y., in 1918. It became a model for other community safety programs to this day.

Mr. Harvey was with the National Safety Council for nine years in charge of its organization and promotional activities among local safety councils and as manager of its New York office, before he became the first executive vice president of the Greater New York Safety Council in 1936. He left that position two years later to apply his knowledge of accident prevention on a nation-wide scale through the Association of Casualty and Surety Companies and now heads one of the largest safety organizations in the country.

Medical Supply Appoints

THE appointment of James A. Chapin as Regional Sales Manager covering eastern states for Medical Supply Company of Rockford, Illinois is being announced by the company president, Gordon P. St. Clair.

Chapin's safety experience has been concentrated in the aviation and machine tool field. He worked for American Air Lines and Air France after serving in the Navy for three years in Intelligence and Air Transport. An alumnus of Williams college, he now makes his home in Westport, Conn.



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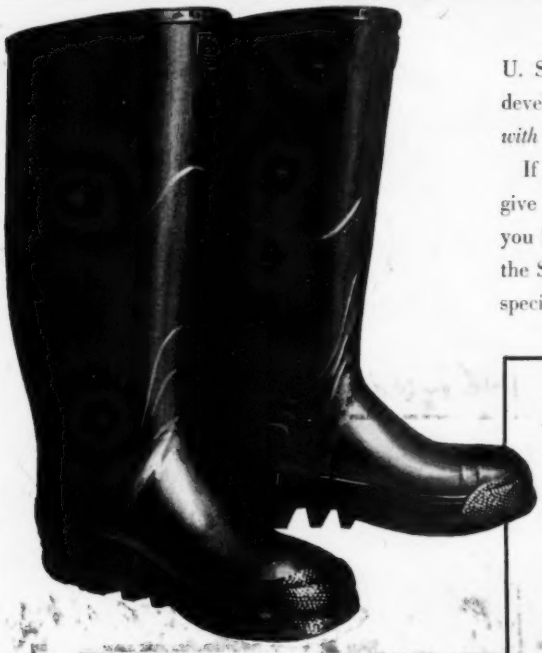

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Exclusive Bar-Flex soles are molded with extra bar cleats for solid arch support. Their cleated-type construction gives you added anti-slip safety down the whole length of your feet.

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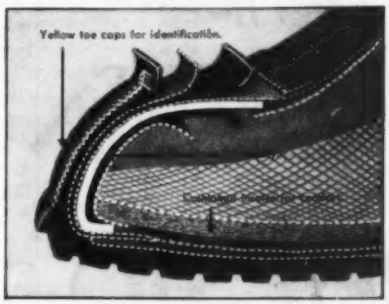
—Engineered for special jobs

U. S. ROYAL WORK SHOES with steel toes, have cleated-type soles for safety, steel shanks to give your arches long hours of comfortable arch support, and Shockproof Insoles. Also with plain toes. Tough Tempered Rubber.



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Engineered like an arch, they've saved many a man's toes. Note scientific "U. S." construction.

LEGGIN BOOTS go over your shoes. Lightweight, rollable, they fold small to pack and carry. Knee or thigh lengths.

FLEXON RUBBERS offer high-cut protection in tough Tempered Rubber or all neoprene to resist oil, grease, acids. Molded anti-slip soles. Easy-adjusting stretchable tops.

U. S. ROYAL SNUGLACE BOOTS with steel toes, have flexible, ankle-fitting uppers with lace adjustment at top. Bar-Flex arch-supporting shank and non-skid sole. Shockproof Cushioned Insoles.

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Right Size
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HOFFCO-VAC
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VACUUM CLEANERS

Designed to Remove Dust from Larger Areas of Floors, Walls and Overhead Surfaces *at Lower Cost!*

Choose from four sizes (1½, 3, 5 and 7½ H.P.) . . . available with T.E.F.C. Class I and Class II motors for hazardous locations. Also, a gasoline engine powered 5 H.P. model. FREE Engineering Survey of your dust conditions to help you select the right Hoffman portable for your specific requirements.

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Conference on Defense Measures for Industry

NEW YORK UNIVERSITY, in co-operation with the New York State Civil Defense Commission, will hold a series of conferences on "Current Problems of Industrial and Institutional Plant Protection" on May 22, 23 and 24 at the University's Washington Square Center, Dean Paul A. McGhee has announced.

The conferences are under the direction of Professor Sidney G. Roth, who is in charge of technical studies for the University's adult school, the Division of General Education. The metropolitan chapter of the American Society of Safety Engineers is also co-operating.

Following a welcoming address by Dean McGhee at 9:30 a.m. on Tuesday, May 22, Dean Thorndike Saville of the N.Y.U. College of Engineering will outline the general problems to be considered at the conferences. The conferees will then hear Professor Morris H. Shamos of Washington Square College describe the "Effects of Modern Weapons," and Carl W. Gabel, director of the Facilities Self-Protection Division of the Federal Civil Defense Administration, urge the "Necessity for Plant Protection Organization." Chairman of the morning session will be Professor Walter A. Cutter, assistant director of the Center for Safety Education.

Under the general heading of "Community Relations," Richard H. Lowe, security co-ordinator of the Socony-Vacuum Company, Inc., and Casimir Kenswick, deputy director of the New York State Civil Defense Commission, will speak on "Management Planning for Disaster Control" and "Coordination with Local and State Civil Defense Officials," respectively.

Professor William Ingram of the N.Y.U. College of Engineering will be chairman of the three-hour afternoon session, beginning at 2:15. This session will hear Milton V. O'Connell, deputy director of the New York State Civil Defense Commission, speak on "Preparing for Emergencies." J. Handly Wright, director of public relations for the Monsanto Chemical Company, will talk on "When Disaster Strikes." Both talks will be given under the general title of "Public Relations."

Speaking on the general subject of "Personnel Protection," Dr. Anthony J. Lanza of the N.Y.U. Post Graduate Medical School will have as his topic "Handling and Treatment of Mass Injury." He will be followed by Daniel Green, director of disaster service of the New York Chapter of the American Red Cross, who will speak on "Disaster Mobilization."

Edward R. Granniss of the Royal Liverpool Insurance Group will be chairman of the conference on "Property Protection," Wednesday from 9:30 a.m. to 12:45 p.m.

Lt. Col. John F. Moran of the Office of the Provost Marshal General (under the auspices of the Department of Defense, Munitions Board) will speak on "Sabotage." Samuel G. Hibben, director of applied lighting of the Westinghouse Electric Corporation, Bloomfield, N. J., will talk on "Preventive Measures," and will be followed by Professor Ingram, whose topic will be "Health and Sanitation Measures." Other speakers at this session will be Edward J. Kehoe, chief of the Fire Accident Branch, New York Operations, United States Atomic Energy Commission, and H. E. Linsley, associate editor of American Machinist. Their topics will be "Fire Control" and "Preparation for Care of Disabled Equipment and Personnel."

Carl W. Gabel of the Federal Civil Defense Administration will be chairman of the afternoon session, beginning at 2:15, at which speakers will discuss "Protection Plans." The conferees will hear Joseph McGuicken, Philadelphia Electric Company; Joseph T. Morrison, Burndy Engineering Company, Inc., the Bronx; Charles S. Steen, Rockefeller Center, Inc.,

MODEL 4710

Neoprene palm coated glove for general utility use . . . providing 7 – 8 times the wear of standard canvas work gloves.

MODEL 7702

Full Neoprene coated industrial weight 14½" gauntlet . . . 6" cuff . . . liquid proof . . . curved fingers . . . for all general industry.

SAFETY STANDARDS?

Keep them high with HOOD gloves!

In industry everywhere, companies have standards of safety for the protection of employees. And fortunately the average is high. But to have high standards is one thing – to keep them high is another! And for that reason, when safety is involved for the vital hands of employees, you owe it to your business *and* employees to investigate the advantages of Hood Industrial Work gloves. Only in this way will you find out, as so many in industry have, that hands in Hood gloves get *more* protection, are *more* efficient, get *longer* wear and *extra* comfort.

So to help keep your safety standards high, see the whole line of Hood Neoprene, Rubber or Plastic gloves, for every use in all jobs, in the new Hood glove catalog. Once your employees have tried them, you'll see why *efficiency* starts with *better* Hood gloves!

"Put your employee's hands into a safer glove"

Write today for the colorful new catalog showing the entire Hood line.

HOOD for NEW Safety PLUS

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and Dr. J. J. Nickson, Memorial Hospital. They will discuss protection plans as they apply to large and small plants, commercial and residential structures, and hospitals and public buildings.

At the group discussion that will follow group leaders will be: Arthur R. Crowl, Radio Corporation of America, Harrison, N. J.; T. R. Leadbeater, Ford Instrument Company; Edgar I. Levy of the Edgar A. Levy Management Corporation, and Henry Anderson of United Paramount Theatres, Inc.

Col. Lawrence Wilkinson, acting chairman and director of the New York State Civil Defense Commission, will speak at the dinner scheduled for 7 p.m.

At the final sessions on the morning of Thursday, May 24, Professor Shamos will be chairman. "Problems of Panic" will be the subject of Dr. Harold Abramson, consultant (psychology) of the Department of the Army. Professor William D. Glenn, Jr., director of N.Y.U.'s Testing and Advisement Center, will speak on "Selection of Personnel for Specific Tasks" and Professor Paul Pigors of the Massachusetts Institute of Technology on "Psychology of Communication."

A workshop, demonstrating information techniques, will be under the direction of Professor Lillian W. Kay of Washington Square College, and Dr. Alfred J. Marrow of the Harwood Manufacturing Company.

Hints for Lubrication

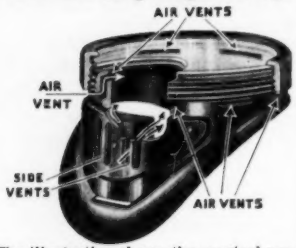
(From page 19) be concerned with quality of production as well as volume. This does not mean that he should simply see that the machines continue functioning smoothly, but he must see to it that the lubricants do not interfere with the products of those machines. Chemical reactions can be affected by minute amounts of lubricants in the wrong places and products can be stained or discolored or otherwise damaged the same way.

One of the worst things about poor lubrication is that it creates hazards in the plant. Equipment which is not properly maintained is unsafe for employees and automatically creates a hazard. Lubrication engineers can do much to eliminate unsafe working conditions and at the same time effect operating savings. In one case, open bevel gears were throwing lubricant to the aisle, creating slippery footing for the operators. Development of a new and more adhesive lubricant solved the problem, eliminated the hazard, and also effected substantial savings.

Lubrication engineering, like safety, must be sold from the top down rather than from the bottom up. It must be directed from the central office by management, which must insist on sound lubrication practices. The lubrication engineer can make very great contributions.

From an address presented at the Second Plant Maintenance Conference in Cleveland, Ohio.

8 MAGIC Anti-Fogging AIR INTAKE FLUES On Every Eye Cup



The illustration shows the magical ventilating principle of the Sellstrom popular 420 Welding and the 421 Industrial Goggles.

The side walls of each eye cup have six ½" ventilating ducts with two extra ventilating ducts on each of the outer sides, making a total of eight ventilating ducts for each eye cup or 16 for each pair of goggles.

The air vents or ducts in the eye cups have openings at the bottom of the eye cup ¼" below the lens with corresponding six openings on the inside of the eye cups immediately below the lens. Between these two openings there are concealed ducts, permitting an abundant flow of fresh air to constantly circulate on the inside of the eye cups. The outside openings are illustrated in the front section of the illustration while the inside openings, directly below the lenses, are illustrated on the rear section of the drawing. The two side vents are illustrated on the front section of the drawing.

Remember there are EIGHT air ducts for each cup; EIGHT "nostrils" for each cup, all of them literally breathing in fresh air and expelling used air.

The Air Ducts are so arranged that it is absolutely impossible for a single speck of light to penetrate the goggles through the air ducts.

Lens Fogging Reduced to an Absolute Minimum

Sellstrom 420 Welding and 421 Industrial Goggles offer the utmost in comfort to the workman but they also increase working efficiency and production because there is an absence of the constant worry about lens fogging.

Order a Few Pair for Test Purposes

Below we illustrate the 420 Welding model Goggle. The 421 Industrial model Goggle is exactly the same except that it has wire screen vents. Order a few pair of each. They are so popular with the trade that most dealers have them in stock. If your dealer does not have them, write us direct.

Sellstrom
MANUFACTURING COMPANY
More Than 200 Eye and Face Safeguards
656-E N. Aberdeen St., Chicago 22, Ill.

Conference City Sets Safety Example

"GRAND RAPIDS, host to the Michigan Safety Conference in May, has proved that accident prevention does pay," is the statement of E. Ross Farra, manager of the Greater Grand Rapids Safety Council the past 24 years. Farra explained that Grand Rapids has more automobiles per capita than any city in the world—with a 354% increase in automobiles the past 23 years—but has the lowest automobile insurance rates of any city of similar population, which reflects the results of accident prevention education. In total accidents of all kinds, for the same 23-year period, Grand Rapids has shown only 58% of the national average.

"Every business, industry, farm and school in Michigan," Farra continued, "has an opportunity to learn all phases of the latest accident prevention methods at minimum cost, by sending representatives to the conference."

R. W. (Bob) Richards, of Lansing, president of the conference announces that nationally known leaders will lead discussions of safety education for the eleven program divisions, which are industrial—with eight subdivisions, automotive maintenance, judges and prosecutors, public utilities and offices, rural, schools and colleges, traffic engineering, traffic law enforcement, transportation, and the women's division.

The conference is scheduled for May 22-24 at Grand Rapids' Civic Auditorium. Information regarding the conference can be secured from Vernon W. Hale, Conference Executive Secretary, or from Edward C. Arthur, Conference Exhibit Chairman, Association of Commerce Building, Grand Rapids, Michigan.

Paint Failures

(From page 30)

this defect takes place, the painted surface looks something like leather. (See Fig. 11.) It comes from too heavy a coat of paint, improper brushing, or it may be the use of the wrong combination of oil and pigment in the finish coat. If the texture is not too pronounced, sanding off and repainting may be all that is required. The trouble is wholly traceable to a lack of high painting standards, both workmanship and choice of materials.

9. Sagging. As the term implies, paint sagging can be discerned when the paint hangs in a bowing, ribbon-like form. This condition is generally due to improper formulation of the paint; a lack of proper balance between the pigment and the thinner. Sometimes it is just the result of too hasty workmanship wherein the paint is applied so thick and fast that its own weight pulls it down. To correct this condition, it is necessary to sand away the irregularities before repainting.

Steps to Good Painting

Where the old paint must be removed, it is absolutely essential to have it *all* removed. The best method for doing this is burning it off with a blow-torch. After all paint has been removed all cracks must be carefully filled to prevent moisture from getting in. Nail holes must be filled with putty and loose boards nailed down tightly. After holes have been filled and all structural defects remedied the surface to be painted should be wire brushed. All uneven spots, humps, or jagged edges must be sanded. When the surface is uniformly smooth and dry, then is the time to apply the paint and not before. Only by such painstaking preparation can the right kind of paint job be done.

With the surface prepared, the next step to insure a good painting job is the selection of the right type and quality of paint. The selection of paint should be based upon the following:

1. It should be specifically designed and adequate for priming the many and varied types of exterior surfaces encountered in both

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For immediate and easy application, to dress a Burn, an Abrasion, certain other Surface Injuries.

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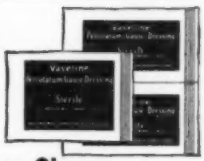
To Open foil-envelope, cut with scissors along dotted line on back of envelope . . . or in an emergency, tear off seal carefully below this line . . . end of dressing is pulled out of envelope with one hand (use forceps, if handy), while envelope is held with other hand.

Cover damaged surface and area two inches beyond with two layers or more of petrolatum gauze dressing . . . then apply sterile dry bandage to keep clean and hold gently in place—using first-aid principles . . . have injury examined by a physician.



Two Sizes:

Unit envelope: one 3" x 36" dressing.
Duplex envelope: two 3" x 18" dressings.
Six envelopes to the illustrated carton.

OBTAINABLE FROM YOUR USUAL SOURCE OF MEDICAL SUPPLIES

new and old work. Products of reputable manufacturers usually carry descriptive material on the label indicating formulation, use, mixing, etc.

2. It should be ready for application with little or no thinning, thus eliminating the uncertainty of results due to improper mixing.

3. It should penetrate deeply enough to secure proper adhesion without its oil content being absorbed by the surface. When the oil is missing, the paint becomes practically worthless. Controlled penetration with the use of such components as vitalized oil is the only guaranteed manner in which the life and action of the paint can be assured.

4. It should seal the surface well, have the proper hiding strength, and have the right type of "body" to prevent crawling, sagging, and similar failures.

5. Its working and application properties should be such as to result in easy and economical use.

Not only does good paint maintenance insure sanitation and an atmosphere of cleanliness that leads to good housekeeping, but it protects a major investment, your plant structure, which would cost a tremendous sum if it had to be replaced, because of neglect, in these times.

And, of course, when cleanliness and orderliness are attained in a plant, production and operational efficiency automatically increase.

Pictures by courtesy of Pittsburgh Plate Glass Co.

Quebec Branch of M.S.A. In New Location

TO PROVIDE better service for its customers in Quebec, the Mine Safety Appliances Company of Canada, Ltd., has just moved to a new and larger branch office and warehouse in Montreal. The building, located at 1271 Ducharme Street, Outremont, contains about 5,000 square feet of space. Removed from downtown traffic congestion, the new location offers larger and improved warehousing facilities for supplying safety equipment to customers.

Reducing Radioactivity of Contaminated Liquids

A SIMPLE, inexpensive process for decontaminating liquids—part of the problem of waste disposal in laboratories using radioactive materials—has been developed by scientists R. A. Lauderdale, Jr. and A. H. Emmons at the Oak Ridge National Laboratory.

In the process, liquid contaminated by nuclear fission products or other radioisotopes is passed through a column or series of columns containing a filter arrangement of steel wool, clay, activated carbon, an anion exchange and a cation exchange resin.

An interim development report of the inventors is available on request to the Director, Oak Ridge National Laboratory, Post Office Box P, Oak Ridge, Tenn.

THE GROWTH OF AN IDEA

Over 50 years ago some far-sighted industrialists had the idea that increased and efficient production could only be had through planned safety programs and equipment.

IN 1901 a handful of inspectors and engineers employed by the fire and casualty insurance companies as well as industrial company pioneers banded together to form the nucleus of the safety movement.

NOW, in the first Golden Anniversary issue of any safety publication, you will be able to follow the growth of this idea and to look ahead at the ever-improving safety methods and equipment for industry.

America's Pioneer Magazine in Its Field

SAFETY MAINTENANCE

75 Fulton Street

FROM 1901-1951

A Genuine

COLLECTOR'S ITEM

THE June anniversary issue of SAFETY MAINTENANCE & PRODUCTION is a colorful, fully illustrated account of the safety movement over the past 50 years replete with oldtime prints from private collections and articles exclusively written for this issue by some of the Who's Who in American industry.

Because of the increased demand for this "museum piece", extra copies of the 50th Golden Jubilee Issue must be reserved by May 10.

The half-century milestone of Safety and Maintenance

GOLDEN JUBILEE ISSUE 1901 - 1951

& PRODUCTION

New York 38, N. Y.

"Lens-Lease" Program

FORESIGHT SAVES SIGHT. The Navy is "lens-leasing" safety glasses to its shop workers. Here, Donald LeFevre, employed at the Maintenance & Repair Shop of the Military Sea Transportation Service, Atlantic, is fitted with safety glasses to the proper correction by an Optometrist Aid with the Navy.

Not only the machine operators, but also the superintendents and visiting inspectors wear safety glasses in the Navy's Maintenance & Repair Shop. As the final step in the initiation of a successful eye protection and correction program, "follow-up" inspections are made of the employee on the job to take care of valid complaints and to see that glasses are worn. LeFevre, working at his lathe, is observed by (left to right): L. Atkins, Shop Superintendent; W. H. Smith, Safety Superintendent; C. Staff, Director of Industrial Relations; and Capt. M. P. Kingsley, USN, Director of Maintenance & Repair Division.

U. L. Tests of Magnesium Alloys

UNDERWRITERS' Laboratories, Inc. has released a new Bulletin of Research, No. 45, entitled "A Determination of the Acceptability of Magnesium Alloys as Enclosures for Portable Electrical Appliances."

A general investigation was undertaken to evaluate the fire hazard involved in the use of magnesium alloys for portable electrical appliance enclosures. The assumption was made that an electrical failure would be accompanied by arcing and that the resulting fire hazard might be increased by the presence of the magnesium alloy. Limited ranges of performance were investigated, utilizing carbon-to-magnesium and copper-to-magnesium arcs, on both direct and alternating currents.

The results of this investigation indicated that under certain conditions untreated magnesium alloys would be acceptable for use as enclosures for portable electrical appliances. These limitations are judged to provide reasonable factors of safety for general design purposes. It is believed that in a specific appliance one or more of the limitations might be extended without increase in fire hazard.

Copies of this Bulletin of Research may be obtained by addressing Underwriters' Laboratories, Inc., 107 E. Ohio Street, Chicago 11, Illinois.

Protective Coatings for Decontaminable Surfaces

RESULTS of extensive laboratory testing of the properties of 50 materials for protecting surfaces from radioactive contamination have just been made available, with the declassification of a report of the Oak Ridge National Laboratory.

The study was undertaken when experience showed that structural materials used in standard chemical laboratories were not always applicable to radio-chemical laboratories, and little user-history on other potentially applicable materials was available. Tests produced recommendations for use and the conclusion that "strippable coatings of the vinyl-base type are generally useful and inexpensive . . . perhaps the best means of protecting wall and ceiling surfaces from contamination."

Copies of the report (AECD 2996) will be sold through the Office of Technical Services, Dept. of Commerce, Washington 25, D. C.

Use the "Check List" on page 72

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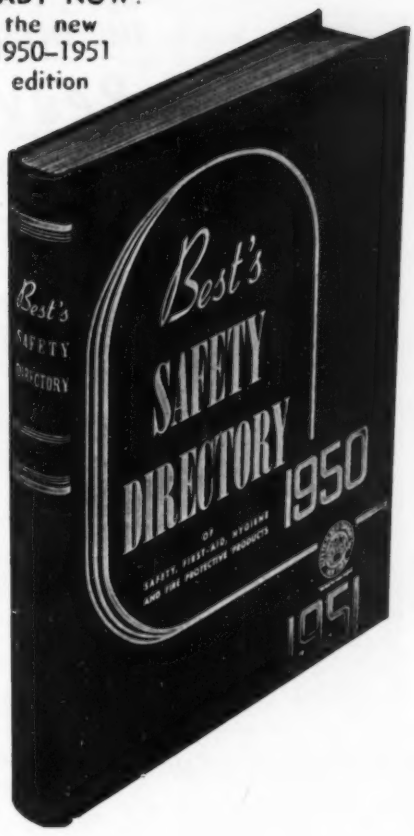

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In the NEW *edition—*

EFFECTIVE NEW METHODS AND DEVICES

It's *two* years since the last Directory! And safety products and protective techniques have multiplied—both in number and efficiency. As a result, your new Directory is *vastly* revised and enlarged.

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You will find the REEVES the best STRETCHER for an emergency. They are used by many industrial plants, hospitals, first aid and rescue squads, police and fire departments throughout the country.

STRETCHER CANISTER

Keep your stretcher ready for an emergency. Store it in a Reeves Stretcher Canister where it will be protected from dirt, dust and dampness.

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"If It's Made of Canvas, We Make It"

New Magnesium Foundry

THE opening of a new magnesium foundry division has been announced by Magline, Inc. of Pinconning, Michigan. The firm has, in the past, pioneered in the development and manufacture of light-weight magnesium products for the industrial and materials handling field. They are, perhaps, best known for their magnesium hand trucks, dock boards, ramps, safety tongs and safety blocks. D. C. Law, general manager, states that the new foundry will enable Magline to greatly increase the output of magnesium castings used in the company's standard line of products.

Law believes that the country's relatively limited facilities for the production of magnesium castings are greatly in need of expansion, especially when viewed in terms of the importance of magnesium to the nation's defense effort. Magline will place their experience and foundry facilities in the design and production of magnesium sand castings at the disposal of plants producing military equipment. They are actively investigating these channels, and will be pleased to cooperate with interested defense contractors by supplying additional information.

STOP *Oily Floor Mishaps* with **FULLER'S EARTH**

TAMMS

Avoid costly accidents caused by slipping on oily or greasy floors! Reduce fire hazards! Replace sawdust or wood shavings with Fuller's Earth. Every shop and industrial plant where machinery is present needs this low-priced safety aid.

Fuller's Earth *absorbs* oil and grease — and it's non-inflammable.
Write for FREE SAMPLE to test.

Dept. R.M. 10, **TAMMS INDUSTRIES, Inc.**, 228 N. LaSalle Street, Chicago 1
(FORMERLY TAMMS SILICA COMPANY)

Idle Mileage

(From page 17) departmental telephone. This still recorded a high degree of "idle time" on truck operation.

Late in 1948 a telephone system of 21 stations was installed throughout the plant. These stations connected directly to the dispatcher's office. Provision has been made for installation of additional stations as needed. Prior to this installation, telephone calls from truckers to the dispatcher had been about 160 a day. Within a month the calls ran as high as 315 a day. Some six months later the average was above 375 a day, while calls for service to Inside Trucking, over other lines, were averaging an additional 350 a day. Installation of this phone system, it was said, eliminated the immediate necessity of purchasing additional equipment.

Truck Maintenance

To service its fleet of battery-powered industrial trucks, a model battery shop is maintained by the Division for the charging, watering and exchanging of batteries. At least two batteries are provided for each unit, and a special crew of electricians and maintenance men look after batteries and trucks. Charging benches for the batteries are served by a power hoist and a bridge crane, utilized for battery removal and placement. As trucks report for a battery exchange, the incoming batteries are watered, the battery then hoisted from the truck's battery box and placed on

a vacant spot on the charging bench, while a fresh battery is inserted in the box. Battery exchange takes approximately three minutes. Trucks report at scheduled intervals for this servicing.

Located in the same area, and adjacent to the truck aisle, is a floor drain, a steam line and a compressed air line, used in maintaining the batteries. These are steam-cleaned and air-dried approximately every two weeks. The same policy of preventive maintenance is applied to the trucks. Each is lubricated every 30 days, while "touch-up" painting is done every 90 days. Each truck is checked daily for working operation before being placed in service, and operators turn in daily reports on truck performance. Any irregularity in operation of a truck during the day calls either for immediate report of the truck to Maintenance, or notation on a check log by the operator, who turns the log in at the end of his shift.

Increased Efficiency

There have been many instances in which substantial savings, both in man-power and in man-hours, have been made in handling operations. To cite a few:

In the handling of cylinder head castings, the actual time now required to unload and warehouse an incoming shipment requires the services of two men, a battery-electric fork truck, and the expenditure of between 1½ and 2 man-hours. The castings each of which weighs 65-lb. are received in strapped-to-pallet loads of 24 heads each, there being 32 such strapped loads to a railroad box car.

Formerly each casting was individually packed in a carton, there being about 750 such cartons to a carload. The handling of a shipment from receipt into storage, utilizing hand-trucks, or dollies, took three men a full shift of eight hours, or a total of 24 man-hours.

Another item used in production at the Division is received from a nearby supplier who ships on over-the-road trailer trucks. This item also is packed in cartons, in the amount of between 700 and 800 per load. These cartons are manually piled on skids at the trucks' tailgates and moved into storage by a battery-powered fork truck. The operation required only 45 minutes to complete, utilizing four men, including the fork truck operator. The Division is endeavoring to have these cartoned items made up into unit loads by the supplier, the loads being either strapped to skids or to pallets. This latter will provide for easy tiering in storage, and will permit conservation of warehouse floor area and the full utilization of vertical air rights within the ware-

Safety Engineer Available

Industrial Hygienist and Labor Relations Coordinator will travel nation-wide. Write to: Box 407, c/o Safety Maintenance & Production, 75 Fulton St., New York 38, N. Y.

SAVED UP TO $11 PER MAN PER WEEK

and removed a safety hazard

Edmont CASE NO. 217

PROBLEM: In electroplating wire products in 120° to 180° chromic acid solutions, expensive unlined rubber gloves proved costly and hazardous because of snagging. Average neoprene coated gloves with fabric base resisted snagging, but workmen wore out 2 to 3 pairs per day, costing $8 to $12 per man per week.

SOLUTION: Redmont gloves with extra heavy duty NEOX (reinforced neoprene) coating, giving 4 to 5 days' service at cost of only $1 to $1.25 per man per week. Employees greatly prefer these lined gloves which absorb sweat, are easy to slip off and give best protection against tearing and flooding with acid. (Full details on request.)

Case records of hundreds of different operations prove that Edmont gloves solve safety problems, increase job productivity, and reduce glove costs. On-the-job tests in your plant arranged upon your request.

Edmont Manufacturing Co.

512 Orange Street, Coshocton, Ohio

World's largest maker of coated industrial gloves

FOOTHOLD* SAFETY TREAD

With the application of FOOTHOLD Safety Tread cleats or rolls, you easily eliminate those dangerous slippery floor areas on ramps, aisles, stairways — all over the plant. It's the inexpensive way to avoid expensive accidents! Sure-footing makes workers more efficient — more productive. Survey possible danger spots in *your* plant NOW and write BEHR-MANNING for complete information. Address Dept. SM-51.

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COATED ABRASIVES · SHARPENING STONES
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FOR EXPORT—BEHR-MANNING OVERSEAS INC., NEW ROCHELLE, N.Y., U.S.A.

Here's better visibility and safety for grinder operators. Eliminate the bother and discomfort of goggles. Built-in illumination. Safety-glass on top of ordinary glass. Fully adjustable. Handy on-off switch. See dealer or write for literature. Stanley Electric Tools, 528 Myrtle St., New Britain, Conn.

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HARDWARE • TOOLS • ELECTRIC TOOLS
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house and storage areas.

One of the outstanding applications of battery-electric trucks by the Division is in the loading of box cars with crated aeroplane engines of the Wasp type. There are two sizes of this engine, the Major, which weighs 3,500-lb. before crating, and the Wasp Junior, which is a little less than half of this weight. The engines are placed in a special type of crate, or box, which is mounted on metal batten strips, or runners. The case for the Wasp Major engines measures 6′ x 6′ x 12′.

Prior to handling by means of fork trucks, a box car was loaded by the manual "inching" of these crates from loading platform into the car, and positioned there by means of rollers and crowbars. From six to eight men would be employed in the dangerous work, and the loading of a car with three or four such cases would require the major portion of a full shift to complete.

In the present method of handling, the Division employs an operator of average skill and a 6,000-lb. capacity fork truck. The operation of loading is done by three men in approximately one hour. The crate is moved from the packing room to the loading platform, from there into the car, and positioned entirely by the battery-powered fork truck. One end of the case is raised by means of the truck's forks and this lift, combined with the "push" of the truck, moves the case on the forward end of the metal batten strips across the bridge plates between dock platform and car. Once inside the car the case is turned by the fork truck until it is centered. The truck then is moved into the car and, again raising one end of the case, pushes it into the position it is to occupy. Four such cases containing Wasp Majors are loaded in the newer type of 50-foot box cars for shipments to the West Coast. Three such cases are placed in the older, standard 40-foot box cars.

The cases containing the Wasp Juniors, being smaller—about 4′ x 4′ x 4′—are carried in entirety on the forks of the battery-electric truck and are placed in the total of 32 to a standard 40-foot box car, being placed side-by-side, two high. Loading a car with Wasp Junior motors also requires only three men and the fork truck approximately 1½ hours. Under former manual methods it would require from four to six men a little more than an eight-hour shift to do the same job.

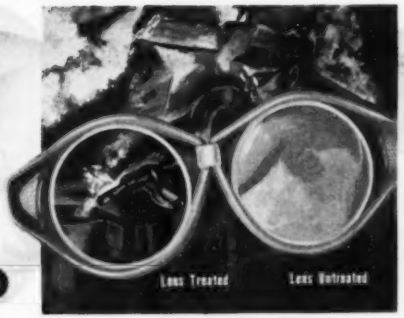
Battery-powered trucks in process operations at the Engine Dress Area move finished engines in and out of the test chambers. This process applies to all but the Wasp Major engine. In the manufacture of cylinder heads a special type of wheeled skid, triple-decked to accommodate some 36 pieces at a time, 12 to a deck, are moved from point to point in tow-car fashion, by use of either platform or fork trucks.

Trucks Aid Maintenance

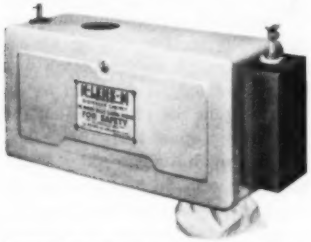
The Janitorial Service also uses platform lift trucks for movement of huge bins of scrap, including

K-LENS-M
REG. U.S. PAT. OFF.

Anti-Fogging
LIQUID



Stops fogging and steaming of eyeglasses and goggles—glass or plastic. Easily applied, K-LENS-M Anti-Fogging Liquid forms an invisible coating that resists formation of fog or moisture on lens surfaces . . . brings clear vision to eyeglass wearers under severe conditions of hot steaming vapors, freezing temperatures, humid summer heat, or body perspiration . . . overcomes hazards of fogged goggles . . . increases worker efficiency and safety.



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Anti-Fogging Station

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metal turnings, from machine side to balers. As much as a ton of turning is moved in a special type of semi-automatic self-dumping bin skid into the scrap salvage department where the contents are discharged into chutes to fall into machines which convert the turnings into chips.

The plant's Millwright Department utilizes electric fork and platform trucks in various operations, either for movement of machinery, handling of supplies or in maintenance work on overhead structures. One picture accompanying this article shows how overhead monorail lines are serviced by means of a fork truck. This raises a special type of platformed work-cage skid to a height of some 14 feet into the air, while a workman cleans and greases the monorail.

Pictures by courtesy of Industrial Truck Association.

What's New?
See pages 68–70

Big Fires of 1950

LARGE-LOSS fires ($250,000 or more damage) increased 12 percent in 1950 over the previous year in the United States and Canada and caused 26 per cent more damage, the National Fire Protection Assn., non-profit fire control group, reports. The findings of the NFPA have been compiled in a 64-page illustrated booklet, "Large Loss Fires of 1950 and Their Lessons" which is available from the NFPA, 60 Batterymarch Street, Boston, Mass., for one dollar a copy.

Notable in the report was a sharp increase in the number of large loss fires in manufacturing plants in 1950 and a substantial decrease in the number of fires in warehouses.

As in previous years over 60 per cent of all fires occurred during hours of darkness. Half of the large fires occurring in manufacturing plants originated during operating periods when detection was presumably prompt. This fact indicates that any investment made for prompt extinguishment, such as automatic protection and organization of employees into effective fire brigades, is amply justified.

More than one-third of the fires occurred in towns having less than 5,000 population or in locations outside city limits in contrast with the less than 20 percent that occurred in cities of over 100,000 population where high property values are concentrated. The comparatively weak fire protection service noted in many small communities explains in part the disproportionately large number of fires in the small towns according to the NFPA.

While 61 percent of the fires started from unknown causes, 68 percent of the fires of known cause could have been prevented if the hazard responsible for the fire had been properly safeguarded.

Geographically, these large-loss structural fires occurred in 40 of the 48 states, Hawaii and Alaska and in six Canadian provinces.

Learning — The Hard Way

THE WEAK LINK

A GARAGE mechanic had raised a truck off the floor using a chain hoist. The mechanic then crawled underneath the truck to do some repair work. The chain, however, broke and the truck fell on the mechanic, causing fatal injuries. Chains, as well as all types of hoisting equipment, should be inspected regularly for signs of weakness. Also, workers should be trained in the safety procedures for any job. Suggestions for preventing accidents of this type are: 1. Determine roughly the gross weight to be lifted; 2. Use the proper size chain to carry the estimated load safely; 3. After the load has been lifted off the floor, jacks or metal supports should be placed under the load to prevent dropping in case of chain or hoist failure; 4. Never work under a suspended load without safety supports.

COVER UP

A SWITCH box that was being installed slipped from an employee's grasp. Trying to catch the box before it fell to the floor, he was cut on the back of one hand by the open cover of the switch box. The injury appeared to be only minor, and although the worker treated it with medication, he did not bother to cover the exposed wound. Later the cut was contaminated by dirt and the hand swelled so much that he was unable to use it. Wounds should be bandaged or otherwise protected after proper medical care. Injured workers should go to first aid rooms for treatment of injuries whenever possible, although in this case there was no dispensary available.

GOOD MAINTENANCE AND SAFETY PRECAUTIONS NEEDED

A TROUGH in an enclosed booth contained a gasoline-rubber cement solution for coating aluminum rollers. A welding torch was being used only a few feet away. Sparks from the torch ignited the flammable vapors and fire flashed to the trough. A sprinkler inside the booth went into action, but the flaming liquids overflowed because a drain failed to function. Later it was found that the drain was plugged. The fire was extinguished by using several hand extinguishers, and other sprinklers outside the booth confined the fire and protected the rest of the building. The basic cause of the fire was the disregard for safety precautions by the welder. Poor maintenance of the overflow drain also contributed to the spread of the fire.

Oil Refinery

(From page 21) contacts by supervisors, payroll enclosures and safety grams. Explanations of safety rules, descriptions of disabling accidents from the plant or other plants, and many more discussion aids are used throughout the plants.

Safety meetings are also held for supervisors, or the subject is discussed in regular operating meetings. New programs, new techniques, new procedures are devised or discussed in such meetings. Every effort is made to obtain full cooperation of all workers through the establishment of active Union-Management Safety Committees and by including workers on accident investigating committees.

Protective Clothing

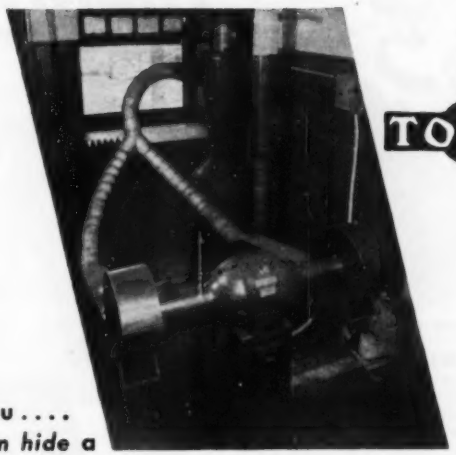
In addition to all the promotional and educational efforts mentioned above, it has long been recognized that personal protective clothing and equipment is a necessary part of a complete accident prevention program. Although efforts are constantly being made to prevent accidents at their source, personal protective clothing and equipment is still required to prevent injuries on many jobs. Accordingly, each of the Company's five refineries, located in Cleveland, Toledo, and Lima, Ohio, and Covington, Kentucky, is supplied with a full complement of gas masks, hose masks, respirators, goggles, safety hats, combustible and toxic gas detectors and many other necessary items of personal protection.

All refinery employees working where falling objects are a continuing hazard are required to wear safety hats. Wearing these safety hats has paid dividends upon several occasions when men were saved from serious injury or, possibly, death. Such incidents and others involving the proper use of protective equipment are given full publicity treatment in the Manufacturing Department's own poster program and in company publications. These serve as constant reminders to other employees that it is essential that they use the protective devices available, Mr. Haier explained.

In a recent case, a jagged piece of steel, weighing some 9 oz. was knocked off a tray casting as it was being hoisted to the top of a tower. The broken piece of casting angled away from the tower and struck a supervisor on top of his hard hat although he was standing about eight feet away from the tower—a distance normally considered safe. Despite the fact that the object fell 56 feet and made a ¾ inch dent in the hat, he suffered only a slight scalp cut. This incident was made the subject of a poster which was used throughout the entire company.

Combustible Gas Control

Sohio has gone a long way in overcoming one of the most hazardous of refinery conditions—that of



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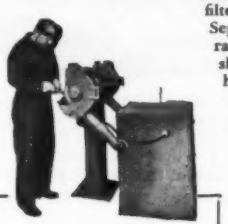
TORIT DUST SEPARATOR

but not its ability to capture dust



Torit Dust Collectors are also available in self-contained cabinet type units for carrying away dust-laden air around grinding, polishing, cut-off machines, and similar applications.

Peeking around the corner, with its after-filter hidden from view, is a Torit 19-FB Dust Separator. Note, too, the special hood arrangement built to clear extruded aluminum shapes, which are pushed into the wheel hoods for polishing.

This is an excellent example of the adaptability of Torit equipment. Here both an unusual plant layout and a rather unique dust problem had to be solved. Since installation this buffing wheel has been in continuous operation and given complete satisfaction.

Well over 20,000 Torit Dust Collectors are now in use in every industry and for almost every dust problem. They will work for you efficiently and economically. Get the details, and the latest Torit catalog, by writing:

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combustible gas concentrations in confined spaces—by the installation of an automatic combustible gas alarm system, Mr. Haier stated. This system, a development of Mine Safety Appliances Company, was adopted following a costly explosion in the Cleveland Refinery's gas compressor house some five years ago. Since the detecting and alarm system was installed, it has operated several times to warn of gas concentrations approaching explosive limits, and refinery personnel have taken immediate remedial action to prevent a blast.

Four explosion-proof combustible gas alarms in the gas compressor house now continuously sample the atmosphere at four points between pairs of compressors. Air samples, drawn into the instruments at a velocity of about 10 feet per second from intakes slightly below floor level, are passed over a sensitized platinum filament. Resistance of the platinum wire is increased in proportion to the temperature rise resulting from this combustion, and the electrical circuit between the two filaments is unbalanced in direct ratio.

An indicating meter on the face of the instrument shows the concentration of combustible gases at all times. When the concentration reaches a predetermined limit—40% of the lower explosive limit—warning signals are activated as the meter needle is drawn by magnetic attraction to a contact point closing the warning circuit. Red lights flash on the instrument, and horns blow loudly in the compressor house.

A similar protection system is installed in the refinery's butane pump house. The instrument itself is mounted outside the building and air samples are piped to it. Visible and audible warning signals are mounted with the instrument and there is a signal extension to a light on the control panel in a nearby control room.

Besides these fixed instruments, the refineries use portable gas detection apparatus to check atmospheric conditions in the vicinity of spots. With this instrument it is possible to use a sampling line up to 50 feet in length to check recessed areas impossible to reach otherwise. Calibrated to give direct readings for many types of combustible gases and vapors, the instruments have proved to be advantageous for checking tanks, vessels, towers, manholes and other areas before welding or "hot work" is started.

Oil Tank Cleaning

The American Petroleum Institute recommended methods of cleaning petroleum storage tanks are adhered to strictly. These methods involve removing as much of the product from the tank as possible, blanking off of all lines entering the tank, opening of manholes, forced ventilation of the tank using air movers until the tank tests "vapor free." Tests also are made thereafter during the cleaning work. As a general rule no worker is permitted to enter tanks until the latter have been tested and found gas free. If it is necessary to enter the tank before it is declared gas free, hose masks must be worn.

Tetraethyl lead tank cleaning teams are furnished with, and required to wear, hose masks which supply them with fresh air under positive pressure from an uncontaminated source, even though the tank is free of gasoline hazards. These masks fully protect the men against all gases, vapors, dusts, mists and oxygen deficiencies while they are performing their work. At the same time maintenance costs are kept down because the equipment can be used over extended periods without replacement of chemicals or compressed oxygen. This mask equipment is recommended by the American Petroleum Institute.

Goggles, face shields, respirators, gloves, aprons, foot guards and many other types of protection are effectively used in Sohio's accident prevention program.

Constant vigilance, and being equipped to handle any eventuality, are two of the important factors in

Sohio's overall refinery safety program. "We believe," Mr. Haier said, "that the availability of a well-balanced supply of emergency apparatus, and a staff of men thoroughly trained in how to use it, can turn a potential disaster into a minor incident. Accident prevention, however, is primarily a function of the degree to which safety consciousness has become ingrained in everyone's thoughts and actions, from the planners and the process and equipment designers to the operators and maintenance men. Sohio is building its program with that object in mind."

Pictures by courtesy of Mine Safety Appliances Co.

Ebasco Seminar

(From page 20) total annual payroll of $237,000,000. Actual figures show an annual compensation cost, exclusive of insurance premiums, of $592,294, a medical cost of $254,000, and direct payments of $244,000 for a total out-of-pocket accident cost of $1,090,963. This amounted to approximately $0.46 per $100 of payroll. On a case basis this figure amounted to about $430 per lost time accident case.

"Safety takes on added importance today, when we are faced with the accelerated mobilization of manpower for defense," Mr. Rogers said. "As this mobilization gets into full swing the country will be hard pressed to furnish enough manpower for the armed services, for the war industries and to keep the domestic economy going. The man hours lost as a result of accidents in industry would provide the equivalent of 706,000 workers. One can readily see the importance of safety work under these circumstances—not only by conserving manpower through the diminution of accidents but also by increasing the efficiency of the men on the job by training in better work performance."

The responsibility for safety is threefold, Mr. Rogers declared. "It rests on management, on supervisors and on employees." The management of the company, however, is primarily responsible, he said. They are responsible to the public, to their employees and to their stockholders for setting up and maintaining a successful safety program.

He stressed the importance of management's part in carrying out, as well as setting up, a good safety program. He said that after being convinced of the importance of such a program, management must select the right men for the assignment, give them the proper tools and then continue to check on progress made.

Since a considerable part of the effectiveness of safety and operating personnel lies in their ability to speak clearly and convincingly, a good deal of time at the seminar was spent on effective speaking. These highly successful sessions were conducted by Dr. Walter A. Cutter, Assistant Director of N.Y.U.'s Center for Safety Education, who instructed *(To next page)*

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Stay Fresh
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Water-Cooled
SMOKE MASK
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Fog-Proof, Gas-Tight Goggles
For combined eye and lung protection of painters, foundrymen, smelters, oil refiners, chemists, firemen, etc. Sponge filter, soaked in water before wearing, keeps out paint spray, smoke, fumes, dusts; provides cool, clean air at every breath. Air-tight goggles give absolute eye protection. Goggles are fog-proof too.
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Double sponges dipped in water before wearing provide cool breathing even under hot, smoky conditions. Recommended for use of workers in paint shops, foundries, steel mills, oil refineries, chemists, firemen, etc. Face mask is of rubber, equipped with DUPOR "controlled breathing" valves. Wearer has a panorama view with no blind spots. Glasses or goggles can be worn with unit.
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SAFETY MAINTENANCE & PRODUCTION Salutes a Safety Idea for MAY

Portable Signal Pylon

PORTABLE street warning signal pylons for emergency use by electrical, water, gas, telephone and sewer workers on busy traffic arteries, and made of a special inflatable rubberized fabric, have been developed by The Goodyear Tire & Rubber Company, at the request of the Consolidated Edison Company of New York. Initial use of the pylons indicates a possible wide application in other cities in the country.

Where sections of the street require barricades for the safety of workers, these pylons can be quickly erected and equipped with flashing signal lights as a caution warning to traffic.

Goodyear engineers said that two types of the initial pylons were 12-feet and six-feet in height, when inflated; yet either can be packed in a small container for carrying, when deflated and not in use.

Made up of two air chambers, bonded together to form approximately a right angle when inflated, the pylon is re-enforced for rigidity by a number of cross-supports at the back, to which electrical connections for flasher lights and other illumination may be attached. The base, made also of rubberized fabric, and resembling a small life raft, adds further to the rigidity of the pylon.

The two upright chambers can be filled with air, while the base is filled with water to firmly moor the device to its desired position. Fabrication in light colors is recommended to increase visibility both day and night.

Picture by courtesy of Consolidated Edison Co. of N. Y.

Ebasco Seminar

(From page 53) the members in the elements of speaking; the ways of preparing speeches; the means of effective delivery; choosing and organizing the content of speeches; planning speeches; conducting a safety meeting and handling a panel discussion.

The course on safety training is also given considerable time in the curriculum. Mr. Rogers explained that "Psychology, educational-research findings and practical experience all clearly demonstrate that there is no truth to the statement, 'You can't teach an old dog new tricks.' Proved principles of educational psychology and training methods are exceedingly valuable to safety-supervisors in handling men and operating teaching and training programs. The training course covers the psychology of learning; techniques for making instruction effective; relationships between supervision and teaching; principles and practices in selecting and organizing instructional con-

tent; the use of the lecture-discussion and question-answer techniques; the uses and limitations of the demonstration method; and motivations for effective learning.

Other courses included in the seminar are: Effective Relations, a course in practical psychology to give down-to-earth suggestions for dealing effectively with people at all levels; Formula for Supervision, which deals with the basic requirements of good supervision and good supervisors; Safety Programs in Public Utilities; Motor Vehicle Safety, a study of problems relating to motor vehicle safety supervision; and Fire Prevention and Protection. Of these courses those at New York University were conducted by the Center for Safety Education under the direction of Dr. Herbert J. Stack.

Field Trips

Several field trips were arranged for the men attending the seminar. One afternoon they inspected the training school of the Long Island Lighting Company. They also visited the Consolidated Edision Company and reviewed their safety program. On a visit to the C-O-Two Fire Equipment Co. they saw a demonstration of the latest fire protection methods and the newest equipment.

At Fort Jay, Governor's Island they spent an afternoon learning about the First Army's safety program, which has cut down the automotive accident rate from 14 accidents per 100,000 miles traveled to 2 per 100,000 miles. The program was explained by Col. R. W. Chutter, Safety Officer, First Army; Capt. Wendell Stuart and H. M. Ferguson, of the First Army Safety Department.

The men saw demonstrations of tests made by the army in its driver selection program and learned about the equipment used. In one demonstration, designed to show the distance necessary to stop a moving vehicle, the vehicle was equipped with a specially designed device for marking the highway at the point where the driver is signaled to stop and the point where he first applied the brakes. With the driver moving at a specified speed, a cartridge was fired from the bottom of the vehicle. The cartridge made a yellow mark on the highway directly below the vehicle. The sound of the explosion was the driver's signal to stop immediately. When his foot touched the brake a second cartridge was fired and marked the road in a second place. This demonstration is particularly effective in impressing driver trainees with the distance necessary to stop their vehicles. They are invariably surprised at the distance they travel before they react to the signal to stop.

Free Bulletins: See page 67

Upon completion of the two week seminar, those attending were awarded diplomas at graduation exercises held at The Downtown Athletic Club, New York.

37
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EVERY HOUR*
WILL ONE OF YOUR MEN BE NEXT?
Every hour, falling accidents kill or disable 37 workmen!*
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*17% of the 222 occupational injuries which occur every hour are due to falls: Source: National Safety Council's 1949 edition of Accident Facts.

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BEST THING NEXT TO YOUR EYES

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You can save yourself time and money . . . and help your men do a better job faster by giving them super comfortable Eyegards Goggles. They rest "easy" on the wearer because the super-light plastic frames are molded to form-fit the face . . . and there's extra ventilation through three large vents at side of cup and seven additional vents around lenses. Impact-resisting, cool and fog-free. Better in every respect, they cost no more than ordinary goggles. Ask for them by name—EYEGARD! Write for catalog.

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May 9. Twenty-fourth Annual Eastern Pennsylvania Safety Conference. H. C. Woods, exec. sec., Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Baltimore, Md.

May 10–11. Maryland State-Wide Safety-Health Conference & Exhibit. (Lord Baltimore Hotel) Joseph A. Haller, executive chairman, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

Syracuse, N. Y.

Central New York Safety Conference & Exposition, May 14–16, (Hotel Syracuse). Walter L. Fox, executive secretary, Safety Div., Syracuse Chamber of Commerce, 351 So. Warren St., Syracuse, N. Y.

Winston-Salem, N. C.

May 16–18. Twenty-first Annual North Carolina Statewide Industrial Safety Conference (Robert E. Lee Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

Duluth, Minn.

May 17–18. Twenty-seventh Annual Lake Superior Mines Safety Conference. (Hotel Duluth). John A. Johnson, Accident Prevention & Health Division, U. S. Bureau of Mines, 18 Federal Bldg., Duluth 2, Minn.

Grand Rapids, Mich.

May 22–24. Twenty-first Annual Michigan Safety Conference & Exhibit. (Civic Auditorium) Vernon W. Hale, executive secretary, 302 Association of Commerce Bldg., Grand Rapids 2, Mich.

Norfolk, Va.

May 24–26. The Seventeenth Annual Virginia State-Wide Safety Conference and Exhibit. (Monticello Hotel) William M. Myers, executive secretary, Room 49, Allison Bldg., Richmond 19, Va.

Chicago, Ill.

June 5–7. Twenty-eighth Annual Midwest Safety Conference. (Congress Hotel). Joseph F. Stech, mgr., Greater Chicago Safety Council, 10 N. Clark St., Chicago 2, Ill.

Salt Lake City, Utah

June 21–23. Thirteenth Annual Western States Safety Conference. Marion A. Snow, exec. dir., Utah Safety Council, State Capital Bldg., Salt Lake City, Utah.

York Harbor, Me.

September 6–7. Twenty-fourth Annual Maine State Safety Conference & Exhibit. (Marshall House) Arthur F. Minchin, secretary,

Maine Safety Conference, Dept. of Labor & Industry, State House, Augusta, Me.

Chicago, Ill.

October 8–12. Thirty-ninth Annual National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, gen. sec., National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

San Francisco, Calif.

October 29–November 2. Seventy-ninth Annual Meeting American Public Health Association. (Civic Auditorium) Dr. R. M. Atwater, executive secretary, American Public Health Assoc., 1790 Broadway, New York 19, N. Y.

N. Y. Safety Conference

(From page 13) Atomic Energy Commission believes that atomic bombs might be dropped on American cities, but that air raid warnings and shelter precautions would reduce loss of life to a fraction of what it would otherwise be. Edward J. Kehoe, chief of the fire and accident branch of the Commission's New York Operations Office, stressed the effectiveness of protective measures.

A study of the Hiroshima and Nagasaki atomic bombing effects has showed, Mr. Kehoe said, that although the two blasts killed 106,000 persons "some few people who remained in air raid shelters close to the zero point (directly under the detonation) escaped unharmed." The toll was so great because in each case the all-clear had been sounded and most persons had emerged from shelters because Japanese defense officials believed that the lone plane which carried the bomb was merely on reconnaissance flight.

Asserting that the dangers of radiation had been exaggerated in the popular mind, Mr. Kehoe said that only five to fifteen percent of the deaths at Hiroshima and Nagasaki were directly attributable to radiation.

Pointing out that the vast majority of deaths were caused by the usual high explosive effects, such as concussion, falling walls, shattered glass and burns, Mr. Kehoe said: "This emphasizes the high value of air raid warning and shelter precautions." Mr. Kehoe said further:

"The high air burst, which we used at Hiroshima and Nagasaki, is probably the most effective use of a bomb against a city. It will produce the most casualties, the greatest damage and the largest fires, but it will leave no radiation hazard. Those who are killed or injured by radiation from this type of burst will receive their injury in the seconds following the instant of the bomb burst. In an air burst of the type of bomb used at Hiroshima, the radiation can kill all of the people exposed in the open within 2,100 feet of the burst and half of those exposed in the open at 4,200 feet. Any type of sub-

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safety belt
saves the man by saving the window anchor!

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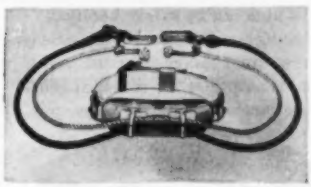

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stantial shelter, especially one below ground, even a slit trench, will provide shielding from much of the radiation and blast, and thus will reduce the casualties.

"For practical purposes, the radiation problem is over in seconds in this type of burst. It is important to know that the bodies of those killed by the highest doses of radiation are not at all radioactive and can be safely handled."

Mr. Kehoe indicated that much of the unnecessary fear of radiation resulted from the stringent restrictions that have been put upon exposure to radioactivity of persons working with radioactive substances. Pointing out that this was because such persons may be exposed daily over periods of years, he said:

"An individual who is exposed to radiation only on rare occasions, as for example in the emergency condition of fire fighting, can take as many as 500 times this low tolerance without any permanent ill effects."

Five "knows" of emergency planning were offered at the convention. They are: 1. Know your hazards, 2. Know your facilities, 3. Know your people, 4. Know your community, 5. Know your plans.

These five "knows" are the heart of a plan for the protection of industry presented by Arthur P. Dunlap, assistant supervisor of the equipment safety and fire control department of Carbide & Carbon Chemicals Division, Union Carbide and Carbon Corporation, South Charleston, W. Va.

"These five 'knows' of emergency planning apply not only to industry but to the home, the school, the public meeting place and even the nation," declared Mr. Dunlap. "Proper emphasis on emergency control should result in preventing accidents, and to a large degree should minimize the possibility of conflagrations or catastrophes."

"Safe" Jobs Unsafe

A Long Island safety expert told the convention that workers on "safe" jobs were often exposed to more danger than those in tasks which had sensational risks. Addressing the construction session, Ferdinand Hoefner, safety superintendent of Hendrickson Bros., Inc., of Valley Stream, said:

"The tendency for workers on the ground to feel more secure than those working above or below the surface probably leads to their greater exposure to danger. To combat the likelihood of recklessness, the supervisors must exercise constant vigilance, plan definite courses of procedure and enforce all safety regulations."

Mr. Hoefner outlined the safety techniques developed by his firm in heavy construction work and declared that methods of training and control had been revised and expanded from time to time to keep pace with increases in the number of employees and volume of work.

"An accident is an accident," he declared, "and it is of equal importance whether it be one of contractor's liability resulting in bodily injury or property damage, or it be a workman's injury of a compensable nature or whether it be an out and out automobile accident. They must all be prevented or at least reduced to a minimum. That is one of the business and social duties of an employer."

Labor's View of Safety

The importance of accident prevention in industry has gone beyond considerations of "good business" and "human suffering" and has become a matter of national survival in this period of all-out production for defense, Frank Burke, director of safety and health of the United Steelworkers of America, stated.

Mr. Burke offered a seven-point program which he said should be carried out by joint committees with representation by top management and union officials from the district as well as local levels. He said in part:

"In this day and age the saving of human lives takes on a new significance. The *(To page 71)*

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industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Industrial Medical-Personal Relations Course

A DISCUSSIONAL conference on "Medical-Personal Relations in Industry" will be held at the University of Michigan's School of Public Health on May 17–19. The enterprise makes available to industrial physicians the appropriate specialists of eight faculties of the University in panels for the study of selected phases of the problem.

The discussions will embrace the following medical aspects of human affairs in industry: Nature and Extent of Personality Problems in Industry; Identification and Diagnosis of Personality Problems in Industry; Training of Medical Staff for Interviewing; Clinical Psychology in Industry; and the Problem of Aging in Industry.

Further details concerning the conference and program can be obtained from: H. E. Miller, Director, Continued Education, Univ. of Michigan, School of Public Health, Ann Arbor, Mich.

Industrial Health in Small Plants

SMALL plants are realizing the importance of an industrial health program, Mrs. Gladys L. Dundore, R.N., executive secretary of the American Association of Industrial Nurses, Inc., New York, stated at a luncheon meeting given by the Georgia Association of Industrial Nurses and the Industrial Nurses Club of Atlanta. The luncheon was arranged in connection with the eleventh annual Congress on Industrial Health, which was sponsored by the Council on Industrial Health of the American Medical Association, the Medical Association of Georgia and the Fulton County (Ga.) Medical Society.

"The value of the industrial health program in cash, good will and in aiding production has been proved beyond any doubt," said Mrs. Dundore. "Authoritative research has shown its results in reduced accident rates and absenteeism, in improved health and morale and in money in the bank.

"Labor, once opposed to the health program, now requests that health provisions be written into contracts. Management, instituting this service for its workers, has come to see this activity reach beyond factory walls to benefit both families and communities. The state of health in the community and that in the plant react to the profit or loss of both.

"Small industry, too, is realizing that what is valuable in large organizations in increasing production is also valuable to the plant with less than 1,000 employees. A worker's health needs do not differ with the size of the plant. While questions of overhead costs have tended to restrict the development of health services in these plants, there has been in recent years a steady increase in this direction. Experiments are being conducted in the use of part-time medical services in order to keep expenditures in line with returns."

Mrs. Dundore emphasized that a health program to be successful must have a definite place in a company's organization.

"The medical department can no longer wisely linger on the edge of the plant as a kind of near relative whose status isn't quite clear," she said.

She pointed out that in World War II the physically able young men were drawn off for military service and that the remaining labor force was called upon to multiply its production. Industry, she added, accomplished this by abandoning old prejudices and conventional ideas and using women, older workers and the physically handicapped, a labor force heretofore mainly untapped.

"This could not have been safely and successfully done without the help of hastily organized and considerably augmented medical departments," she said. "The need for this service was so widely recognized that employment in industry increased from 1,000 industrial physicians and 3,000 nurses at the beginning of the war to from 8,000 to 10,000 physicians and 12,000 nurses at the end."

FEATURE

This is the fourth of four feature articles on First Aid & The Industrial Nurse. The three previous articles were published in the February, March & April issues of SAFETY MAINTENANCE & PRODUCTION.

Resuscitators To

By WILLIAM H. STEPHENSON
Stephenson Corporation
Red Bank, New Jersey

The resuscitator is the first line weapon in the battle against asphyxia, and in today's troubled times should be made available for any emergency that might develop.

THE wide spread asphyxia that would necessarily follow any major disaster poses a serious problem to industry. Cases of breathing failure would follow from all kinds of shock, electric and traumatic, including compression of the chest through cave-ins, strangulation, smoke suffocation and gas poisoning.

Essential things to do in resuscitation are: re-establish breathing, keep the air passages open and supply warmth to the patient. Until respiration equipment is available, the rescue worker must do the best he can with what is at hand, since time is of the essence.

The earliest recorded method of resuscitation (mouth to mouth) occurs in the Bible. Elisha resuscitated the son of a Shumanite woman by breathing into the mouth of the child. This method has been used all over the world ever since that time and it is still quite frequently employed by doctors delivering babies in homes where no equipment is available. Several cases have been reported where mothers instinctively revived their infants suffocated in bed clothing, by breathing into their mouths. The same is true of animals.

Manual Methods

There are many manual methods of resuscitation that have been used down through the years including the methods of Hall, Howard, Silvester and Schafer. The latter has been the most popular in this country and is still today the most widely used. In recent years Neilsen added the arm-lift to this method thereby causing more air to enter the lungs of the patient. The same effect is achieved by the Hip-Lift method of Ivy and Emerson which is currently creating a lot of interest. It is obvious that any manual method which exerts a push and pull motion on the patient's chest is more efficient than one which uses push only and then depends on the elastic recoil of the chest to cause the patient to take in air. As muscle tone and nervous reflexes disappear this elasticity also becomes less and less thereby reducing the effectiveness of the method.

The addition of an inhalator which makes oxygen available to the patient will increase the effectiveness of any manual method.

Automatic Resuscitation

The best treatment of all for cases of respiratory failure is the modern, automatic, medically accepted resuscitator. Every effort should be made to get one to the scene of any asphyxial accident just as soon as possible. These automatic breathing machines are uncanny in what they do. Not only do they put oxygen in and take used gas out of the lungs but they signal the operator when secretions come up to clog the throat. They provide for efficiently aspirating these secretions and also furnish oxygen inhalation when the patient can breathe for himself. They have made a brilliant record of life-saving in this country during the past 25 years.

It all started in Glendale, California back in 1927 when a bright young mechanical engineer by the name of M. Harry Goodner invented a Resuscitator for a doctor named Johnstone. Trials of the machine by the doctor and the Los Angeles Fire Department were successful from the start. Difficult cases of smoke suffocation, drowning, electric shock, carbon monoxide and other asphyxia were miraculously revived. But soon the new life-saver ran into heavy opposition. Prominent advocates of other methods classed it with the old Lung Motor which had proved to be dangerous in some cases and thereby acquired a bad reputation. They stated openly that it would do damage to the lungs and started a controversy that raged for years around this enterprising new machine. But as more and more lives were saved and as hospitals and industrial corporations began to use it as well as Rescue Squads of Police and Fire Departments, the clinical

The Rescue

Red Cross Demonstration of Modern Resuscitator. In "real" emergencies, the victim should be covered with blankets for warmth.

record became more and more impressive. Recognition for the resuscitator grew not only in lay circles but in medical circles as well. Today there are several makes of automatic resuscitators available in this country, all of them accepted by the American Medical Association.

In the event of a major disaster every resuscitator available should be called into action as quickly as possible since in all cases of respiratory failure prompt action can make the difference between life and death. The use of these machines is comparatively simple and most Rescue Squads understand them thoroughly.

More and more industrial plants are putting them in and training personnel in their use. This is being done without relaxing in any way the emphasis on the manual method of artificial respiration. A continuing training program should keep all plants, large and small, ready to perform some manual method effectively at all times. This helps tide the patient over until the resuscitator arrives by getting at least some air into the lungs.

Rules for Use

When the resuscitator does arrive, apply it quickly to the patient, thereby increasing his chances of survival. The reason is that it definitely increases pulmonary ventilation and also aids the circulation. This is very important since respiration and circulation are so inter-dependent.

In using any resuscitator, the first rule to remember is to: check the mouth for gum, false teeth, tobacco or other foreign material and clean these out. Then it is advisable to place a small metal airway that comes with the resuscitator over and behind the tongue of the patient. This prevents the tongue from falling back over the windpipe thereby blocking the passage of oxygen. Then apply the mask over the patient's nose and mouth and turn on the oxygen tank with the control set for resuscitation. The machine will automatically breathe for the patient and it will adjust itself as to rate of respiration depending on the patient's own lung capacity. This is automatic and requires no adjustment on the part of the operator. Remember to keep the patient warm by using blankets, coats, hot pads or any other means available. This is important since oxygen chills the system and warmth is very important to the patient, especially in cases of shock.

When the patient begins to make some efforts at respiration you will notice these efforts and perhaps an irregular tripping of the resuscitator. At this time inhalation should be tried to see if the patient can breathe for himself.

There are some resuscitators which permit the working pressures to be lowered as the patient begins to recover the ability to breathe and also for air to be gradually mixed with oxygen at this time. This gives a smooth transition from automatic respiration back to the patient's own breathing, and if these facilities are available they should be utilized.

Now is the time for all plants to review their situation as to resuscitation. Bring it up to date both on training for the manual method and on providing the latest in automatic resuscitation equipment.

There are now available very small automatic resuscitator-inhalator-aspirators which are quite helpful in major accidents since they are so easy to transport and to use on patients in difficult-to-reach places. Hose extensions permit the rescue worker to climb a telegraph pole, enter a basement or work his way through debris and resuscitate the patient 30 or 40 feet away from the resuscitator.

Lives are being saved every day by the prompt and correct use of such equipment. Heart cases, asthma attacks and a hundred other types of respiratory difficulty are getting quick and striking relief. Any major disaster would multiply such asphyxial emergencies by the thousand. It is time to take stock of preparedness to meet such a situation—and as quickly as possible remedy any deficiencies.

Picture by courtesy of the Red Cross.

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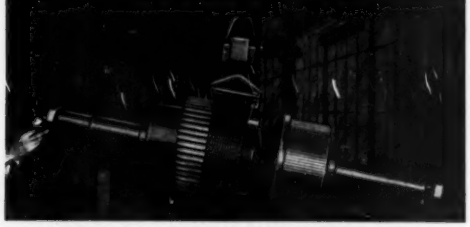

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Control of Plating Waste

THE electroplating industry, which uses a larger number of toxic chemicals than any other line of work, is setting aside a substantial sum each year for research on waste disposal, it was reported recently at the 21st annual convention of the Greater New York Safety Council. The report was made by Henry Harrison, research chemist for Oakite Products Inc., of New York City, to a session, in the Hotel Statler, on the engineering phases of industrial health. The session chairman was William T. Ingram, Associate Professor of Public Health at New York University.

"The advent of pollution control programs which are being carried out on local and nationwide scales," said Mr. Harrison, "has made the disposal of spent solutions and even of rinse waters a matter of complexity and difficulty for many plating shops. In general, pre-treatment of plating wastes is required before they can be discharged into municipal sewers. This may not be true if the plant is small and the domestic sewage flow large, and if the concentrated wastes are disposed of in some other manner, and if the flow of dilute wastes is uniform and steady.

"There have been several different ways in which metal finishing wastes have been known to affect adversely sewerage systems and sewage treatment processes. Most sewage treatment procedures are based on biological action and it has been established that cyanides and some metallicions such as copper and hexavalent chromium interfere with the settling and digestion processes employed in the treatment of sewage.

"The metal plating industry is making rapid progress in solving its pollution problems, and is one of the leaders in the study and solving of these problems. The American Electroplaters' Society disseminates information on problems of the industry to its members, and is budgeting a substantial sum annually for research waste disposal."

Need for Anhydrous Ammonia Code

GROUPS oncerned with the manufacture, distribution, and use of anhydrous ammonia and ammonia solutions have recommended that the American Standards Association organize a committee to develop safety standards, the American Standards Association has announced. At a conference, these groups proposed that the work cover design, construction, location, installation, and operation of anhydrous ammonia systems as well as transportation and storage of anhydrous ammonia and ammonia solutions. Ammonia manufacturing plants, refrigerating, and air conditioning systems would not be included.

The problems of handling and storing anhydrous ammonia have assumed nationwide importance be-

cause of the increasingly widespread use of this gas as a soil fertilizer. Since anhydrous ammonia is usually transported in liquid form under pressure in tanks or cylinders, the relation between the strength of the tank and the pressure and temperature under which the gas is handled will be one of the problems to be given careful consideration.

The need for this work was called to the attention of the American Standards Association by the Compressed Gas Association which has offered its standards for the storage and handling of anhydrous ammonia and ammonia solutions for the committee's use. The conference recommended that the Compressed Gas Association be asked to sponsor this work.

The recommendations of the conference will be referred to the Safety Code Correlating Committee of the American Standards Association for final decision as to whether a committee will be set up under ASA procedure.

Groups represented at the conference were: American Institute of Chemical Engineers; ASA Chemical Industry Correlating Committee; American Society of Refrigerating Engineers; American Water Works Association; Association of Casualty and Surety Companies; Compressed Gas Association; Interstate Commerce Commission; Manufacturing Chemists Association; National Safety Council; U. S. Coast Guard; U. S. Department of Labor, Division of Labor Standards.

Steel Companies Fight Air Pollution

EVERY minute, steel companies "wash" more than seven million cubic feet of blast furnace gas as part of their programs for abating air pollution, the American Iron and Steel Institute announced. At some furnaces the washed gas contains less dust than the surrounding atmosphere which people breathe.

In a recent installation, steel pipes nine feet in diameter carry blast furnace gas to washers which remove the large dust particles. Electrostatic precipitators take out small particles. The resulting gas contains less than one-hundredth of a gram of dust per cubic foot, and is used as the chief fuel for a large boiler plant. Dust recovered from blast furnace gas contains iron particles which may be caked and reused in the furnace as "iron ore."

Many kinds of equipment have been developed in the fight against blast furnace air pollution. Centrifugal force, water pressure, electrical and sonic equipment and dozens of other devices are being used. An electrical precipitator 60 feet high has been installed by a West Coast steel company as part of a cleaning system for exhaust gases from open hearth steelmaking furnaces. An estimated 96 per cent of pollutants is removed.

Research programs are under way to further reduce air pollution. Some companies are working to make stack gases nearly invisible.

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THE INDUSTRIAL Nurse

EDITOR

ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Hazardous Vapor

MANY industries and industrial processes employ substances which under uncontrolled conditions affect the health of the workers exposed. Often both management and the employees are unaware of the hazards involved. This is, however, rarely the case in large industries which employ competent safety engineers. One of the chemicals involved is benzene or benzol. It is used extensively in many industries for the extraction of fats and oils; as the synthesis of organic chemicals; in the manufacture of varnishes, paints, lacquers, and stains, varnish and lacquer removers; as a solvent for rubber and various rubber cements. Considerable exposure to fumes may be present in the manufacture of leather, the dry cleaning industry, and in some printing plants. Benzene is also used in airplane dope, in electroplating, enameling, engraving and in many other processes. Under various conditions in which benzene is used, including its manufacture, there is opportunity for escape of the vapor only as a result of an accident. When this takes place, acute poisoning may result if severe exposure is experienced. In acute poisoning, the solvent acts predominately as a nerve poison, causing depression of the central nervous system, damage of the blood, blood-forming organs and of the blood vessels. Inhalation, of a high concentration of benzene rapidly causes inebriation, soon followed by fatigue, sleepiness, vertigo, nausea, vomiting, headache, and staggering gait. With prolonged inhalation of large quantities of the vapor, twitchings, convulsions, paralysis, loss of consciousness and even death may follow. An effective way, outside of standard safety engineering methods, to help in guarding against possible serious consequences, or even absenteeism due to illness following exposure to the vapors, is for the industrial nurse to be well informed about the hazards. She should know when benzene in similar poisonous products are used in a plant and learn the symptoms of specific poisoning. Such knowledge will help to provide effective clues to possible illnesses listed and others that may be manifested.

Finding Cardiac Cases

MEDICAL research and practice have reached high levels of achievement, and yet study continues at a rapid pace. An index of current practices is available on the basis of a cardiac disease case-finding project. The procedures which are carried out on each person admitted to the study include the following: (1) An extensive medical history including family history of cardiovascular disease; a detailed past history of various childhood and chronic diseases, operations, thyroid diseases, presence of transient and permanent hypertension, heart murmurs, and "heart attacks"; previous diagnoses of angina pectoris, congenital heart disease, heart failure, vascular disease of any kind, enlarged heart, "nervous heart," pericarditis, and the history of any previous kidney disease, renal or hypertensive complications of pregnancy, or of any menopausal symptom; any current symptoms of heart or pulmonary diseases including cough, dyspnea, etc.; (2) Detailed physical examination performed independently by at least two physicians, aimed at detecting cardiovascular abnormalities or diseases related to the cardiovascular system, and measurement of characteristics which may be related to such disease—including examination of the heart for sounds, murmurs, abnormal rhythm, blood pressure determinations, examination of abdomen for tumors, liver enlargement or palpable spleen; examination of the extremities; (3) X-ray examination, teleorocntgenogram; (4) Electrocardiogram; (5) Electrokymographic tracing; (6) Examination of blood sample for hemoglobin, serum cholesterol, serum phospholipid, uric acid, glucose level, serologic test for syphilis; and (7) A routine urinalysis. The

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major objective of this detailed examination is to utilize all known measures to determine the presence or absence or potential development of cardiovascular disease. This is all an indication of the care and extent of essential procedures, though it is not implied that such procedures are practical or even necessary in industrial medical departments. They may, however, be required and carried out by referral in case of serious doubts whenever indicated.

Side Effects of Antibiotics

THE several antibiotics now in general use, beginning with penicillin, have rightly been called the wonder drugs of our generation. Through their proper use, medical science, collaborating with the scientists in high quality commercial and university research laboratories, has been able to achieve some remarkable results. Various infectious diseases no longer present the problems and hazards of only a few years ago. World-wide plagues such as those presented by the venereal diseases and especially syphilis and gonorrhea, are now within the possibility of virtually being wiped out. Pneumonia has fallen sharply as a cause of death. Many operations are now being avoided, or their performance is being made much safer because of the use of one or more of the available and safe antibiotic preparations. But there are recognized and distinct hazards which need to be kept in mind by those in positions of medical, nursing and public health responsibility. These relate to the virtual uselessness of some antibiotics in the treatment of specific conditions which do not yield to such therapy. The other relates to a number of so-called side effects brought about by antibiotic therapy. Those who are not fully informed about these matters may give unqualified advice. Others may use these preparations without careful medical oversight and thus bring on various side effects. For instance, in a study of 125 patients who used two types of antibiotics, the following conditions resulted—dryness of mouth, sore or tender tongue, denuded tongue, smooth atrophic tongue, brown-coated tongue, blisters of tongue, changes in taste, burning sensation in mouth, red oral mucous membrane, sore throat, angular stomatitis, nausea, vomiting, heartburn, flatulence, rectal irritation, vaginal irritations, scrotal and perineal irritation, skin eruptions, diarrhea, loose stools, headaches. Some patients developed drowsiness and malaise, visual disturbances, mild mental confusion, urticaria, and other conditions as well. In other words, careful medical control is essential when the antibiotics are used, and industrial nurses should avoid giving advice unless on orders of the plant physicians.

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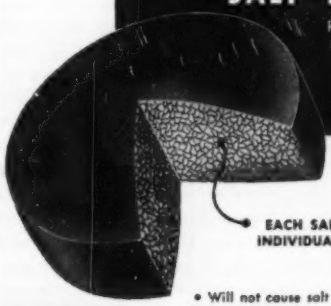

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Hospitals and Industrial Medicine

AILING and industrially injured workers frequently have to be referred to community hospitals for medical and surgical care. In areas where such hospital facilities, whether operated as municipal, voluntary or private institutions, do not meet local needs, many problems are presented. In some instances employers have found it necessary to establish their own medical institutions. Otherwise, patients either do not receive the quality of care which will return them to their jobs with a minimum of financial loss to all concerned, or they have to be sent fairly long distances to well-organized and equipped hospitals in other communities. Fortunately, this situation is nearing a fairly rapid solution. Figures compiled by the U. S. Department of Labor indicate that expenditures for the construction of hospitals in the United States are higher than ever before. In 1949, the last year for which final data are available, expenditures for the construction of hospitals and institutions totaled $679 million. This amount is almost four times the sum spent during any previous period of high construction activity, such as the years 1925–1929. Even after allowance is made for the decline of 55 per cent in the value of the construction dollar, the volume of construction attained in 1949 is still two-thirds above that reached during the base period 1925–1929. The extensive construction program was carried out under private auspices including both voluntary non-profit organizations and proprietary institutions. The data for public institutions include all civilian agencies of Federal, State and local governments. Preliminary estimates indicate that in 1950 total expenditures for construction of hospitals and institutions exceeded $825 million, with private expenditures approximating $340 million. These figures represent an increase over 1949 of about 70 per cent in private construction and 3 per cent in public construction. An overall better service and improved care of ailing and injured workers can be looked for in the immediate future.

Self-Treatment

THE recent epidemic of colds and respiratory virus infections resulting in more serious disability, once again raised the question of the wisdom of self treatment. Many adults have learned the usual procedures that should be followed in the case of the ordinary cold. The difficulty arises when the so-called average cold turns out to be something more serious. Coupled with this has been the fairly wide self-treatment with antihistaminic preparations. There has even been a division of opinion as to the value of these drugs. Since most upper respiratory infections are self-limiting, running their course in a few days, the taking of some drug during that time may understandably leave the impression that the cure followed its use. An authoritative statement on the subject has been issued by a committee of the New York Academy of Medicine, a body of high repute in medical circles. The report stated that the antihistaminic preparations are of no value in the treatment of true colds and the public should be warned of the hazards attending their use. These drugs are not without hazards. In some persons troublesome reactions occur. Fortunately, most of the reactions are mild. They may, however, have serious results. For example, the drugs may induce drowsiness or dizziness, which may lead to accidents, particularly among drivers of automobiles, pilots of aircraft or operators of machinery, in whom, efficiency and judgment may be temporarily impaired. Allergists have estimated that at least 20 per cent of those who take antihistamines in the doses recommended on the packages in which they are sold will experience undesirable, if not dangerous, reactions. Another hazard of these drugs as a cure for colds is that what may appear to be a "cold" is really the beginning of a serious infection and this may be neglected while the sick person is taking antihistamines on his own responsibility. These several matters fall into the domain of the industrial nurse who is frequently asked by workers what to do for a cold, and whether or not certain remedies are effective. She should not guess, but follow medical advice.

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As a convenience to executives, the new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. The catalogs, data sheets and technical bulletins reviewed here present the latest information on protective and maintenance products and equipment.

PERSONAL PROTECTION

Eye Safety Guide 1

American Optical Co. A new revised issue of this easy-to-use guide lists eye-hazardous occupations and recommends the types of protective devices suitable for the specific hazards. Completely illustrated, it serves as a valuable reference chart to show immediately WHAT type of eye protection to use WHERE.

Wooden Sole Safety Shoes 2

Reece Wooden Sole Shoe Co. This illustrated 6-page folder shows the startlingly varied hazards for which wooden sole shoes offer foot protection. Several types of boots, shoes and sandals are described in detail for insulating against heat and cold, resisting acids and oils, and guarding against punctures by nails, glass, etc. The folder also features the protection given by steel toe caps.

Impregnated Work Gloves 3

American Rubberizing Co. A new 4-page bulletin describes the advantages of canvas and cotton work gloves coated with natural rubber, Neoprene or plastic for increased safety and comfort in many handling jobs. The bulletin includes both men's and women's work gloves and mittens in knit-wrist, band and gauntlet styles and in various colors, plus descriptions and applications of each.

Ear Valve 4

Sigma Engineering Co. This informative 6-page folder gives full details on the Lee Sonic Ear-Vaiv which is a small filter that fits into the ear to eliminate sudden loud noises and the blast effects of explosions, while permitting the passage of sound at noise level as well as air circulation. The folder lists suitable applications such as riveting, pneumatic drills, factories, punch presses, mining, blasting, etc. as well as for the armed forces.

Protective Equipment 5

Glendale Optical Co., Inc. The forward to this illustrated 16-page catalog points out the dangers to limbs and eyesight whenever machines or hand tools are used. The catalog gives full details and uses for the company's line of protective eyewear, clothing and equipment, including clear and filter lenses; welding helmets; spectacle-, eyecup-, and plastic goggles; leather gloves & mittens, cape sleeves, aprons, sleeves, bibs and coats.

FIRST AID

Resuscitation Equipment 6

E & J Manufacturing Co. This colorful 1-page bulletin shows you how to play safe in emergency rescue work by using resuscitation equipment. The versatile resuscitator-aspirator-inhalator described in the bulletin utilizes positive and negative pressure for restoring breathing in emergency cases.

RADIATION PROTECTION

Monitoring for Civil & Industrial Safety 7

Tracerlab, Inc. Here, at last, is a practical, simply written booklet that answers such questions as "Can we remain in this area?" or "Is it safe to eat this food or drink this water?" by suggesting the types of instruments or devices that will measure the radioactivity at various contamination levels. In addition, it describes radiation hazards and protection against them, the training of civil defense personnel, medium and high level monitors, low level monitors, and food and water monitors.

PETROLEUM SAFETY

Cleaning Gasoline Storage Tanks 8

E. I. du Pont de Nemours & Co., Inc. "Tank Talk" is a new 50-page booklet to appeal to and stimulate safety among men who clean gasoline storage tanks. Using a cartoon treatment, the pocket-size manual outlines safe procedures for entering tanks, shows the equipment to be worn, and emphasizes safe methods for removing sludge.

AWARDS & INCENTIVES

Award Catalog 9

Williams Jewelry & Mfg. Co. An illustrated 16-page catalog of this company's Trophy & Medal Shop offers many and varied types of awards that can be used in safety programs. Included are: statuettes, cups, plaques, medals and pins, and jewelry gifts.

LIGHTING AND ELECTRICAL EQUIPMENT

Planned Lighting for Industry 10

General Electric Co. A comprehensive 47-page manual outlines the benefits of good industrial lighting in the form of increased efficiency, safety and morale, better quality, lower costs, improved health, etc. Profusely illustrated, the manual then shows how to engineer lighting to industrial tasks and discusses six lighting systems, the types of light sources and the relation of light and color. Other sections deal with protective lighting, wiring, lighting maintenance and lighting special areas.

Vapor-Proof Fixtures 11

Appleton Electric Co. This 20-page catalog section describes and illustrates the convertible vapor-tight lighting fixtures utilizing the unit assembly principle. Included are full specifications for the reflectors, globes, guards, adapters and mounts, as well as hand lamps and fixtures for marine or marker service.

Fluorescent Fixtures 12

Holdenline Co. This 12-page illustrated catalog describes the basic unit system of fluorescent lighting and how variations of the system can meet specific needs. Included are: all-plastic louvered commercial units, plastic & steel reflectored units, heavy-duty enclosed ballast industrials, and exposed ballast industrials.

Wiring Connectors 13

Buchanan Electrical Products Corp. An illustrated 4-page bulletin gives full details on a method of making safe, permanent, trouble-free splices and terminations on electrical wiring. One pressure tool can be used for installing both splice caps and terminal lugs on all wire combinations from two # 18 to three # 8. It eliminates bulky soldering equipment and the danger of shorts and grounds from punctured tape.

MATERIALS HANDLING

Industrial & Marine Hardware 14

The Thomas Laughlin Co. A new, revised and enlarged data book, combining valuable engineering information with an extensive catalog of a complete line of wire rope and chain fittings. Presenting detailed working characteristics of each product, the 44-page catalog includes: links, shackles, hooks, safety snap hooks, barrel hooks, turnbuckles, safety clips, sockets, etc.

Industrial Trucks & Hoists Catalog ... 15

Yale & Towne Mfg. Co. A new comprehensive catalog of materials handling equipment offers 44 pages of descriptions, pictures and application data on: gas & electric fork lift trucks, motorized hand trucks, hand lift trucks, and hand & electric hoists. An interesting section also describes various attachments for special handling jobs.

WASHROOM SANITATION

Integrated Soaps 16

Lightfoot Schultz Co. This interesting 2-page bulletin describes three powdered cleansers with each particle combining the soap and scrubber as a unit: heavy duty, extra heavy duty, and an office type. Also included is information on a non-clogging dispenser.

Metal Lockers & Partitions 17

Central Sheiving Co., Inc. A 4-page illustrated bulletin describes many of the steel products available from this company, including metal clothing lockers, toilet stalls and hospital cubicles. Also of interest to industry are the lines of metal shelves, cabinets, tables and partitions.

GUARDS

Power Press Guards 18

Hoffman Engineering Corp. A 1-page bulletin describes and illustrates a photo-electric guard with which a barrier guard can be used as a double safety precaution. The press is inoperative until the operator's hands are completely removed from the light beam area.

Robot Operators 19

Robot Appliances, Inc. Illustrated literature shows how automatic operating devices for doors and gates offer advantages of increased safety, economy and convenience. Specific applications of "robots" in factories, warehouses and commercial institutions are included.

WRITE NUMBERS CORRESPONDING TO THE ITEMS HERE ☞

Your Company Name _____
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City & State _____

Your Name _____

Your Title _____

Return This Coupon To:

SAFETY MAINTENANCE & PRODUCTION
75 Fulton Street
New York 38, N. Y.

FOR MAY, 1951

What's New . . .

A coupon is provided at the end of this section for your convenience in obtaining illustrated descriptive literature of products listed here. *Send the coupon or written request to:*
Service Dept., SAFETY MAINTENANCE & PRODUCTION

RUBBERIZED PAINT

A REVOLUTIONARY new interior paint that combines the rugged durability and washability of an enamel with the appearance and usefulness of a flat wall paint has been introduced by the Pittsburgh Plate Glass Company. The new product, known as Wallhide Rubberized Satin Finish, is described by E. D. Peck, General Paint Manager of the firm, as having properties never before obtainable in a wall coating.

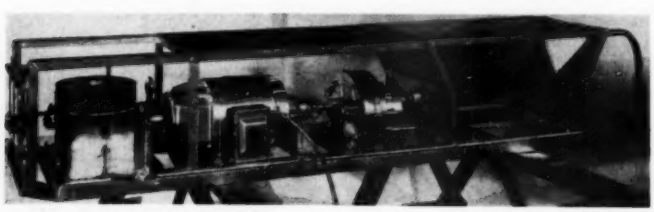
One of the outstanding advantages of this new finish is that it requires no special primer because it acts as its own primer.

It may be applied by brush, spray or roller coater on any interior wall or ceiling surface including new or old plaster, paint, wallpaper, wallboard, brick, concrete, cinder block, wood, or primed metal. Grease, crayon, lipstick, finger smears, and ink spots may be easily removed from the painted surface because the rubber-like film prevents such materials from penetrating the surface.

The new paint is expected to fill a special need for hotels, hospitals and other institutions where quick drying of paints is an important factor. Rooms may be repainted and ready for occupancy within a short time because Wallhide Rubberized Satin Finish has no objectionable odor either during or after application.

The finish dries in one hour to a smooth, velvet-like sheen without apparent brush or lap marks. If a second coat is desired, it may be applied in four hours. Unlike ordinary paints, the paint film does not shine up when washed in local areas. Neither does it crack nor chip because the film remains flexible. It resists wear like a fine enamel. After drying several weeks, the painted surface may even be scrubbed without damage to the sheen or color.

Dirt and stains tend to remain on the surface of this dense, non-porous coating and are easily removed. There is equal appeal in the convenience of easy cleaning of brushes, rollers and equipment by washing out quickly in soap and water. Hands, too, clean up in this easy way. The new paint will be furnished in 12 standard colors, which through mixing permit an almost unlimited selection of shades. For details, use the coupon.



PORTABLE ROCK-DUSTER

A PORTABLE rock-dusting unit has been designed to overcome the laborious work of moving dusting machinery from room to room in low-roof mines. Developed by The American Mine Door Co. of Ohio, the rock-dusting equipment is mounted on skids or can be equipped with rubber-tired wheels. With the towing cable hooked to a crossbar, the unit will pull itself onto a conveyor, over a conveyor or off the conveyor; or with the cable attached to a jack, the unit will travel 40 feet per minute regardless of the roof height or the condition of the floor.

The unit, including hopper, blower, motor and winch, is 8½ feet long, 20 inches wide and 18 inches high. The hose can be connected or disconnected rapidly by means of a quick-acting clamp. There is ample power for distributing a large quantity of dust through 50 to 250 feet of 1¼ inch hose under continuous operation. For further details about the "Little Chief Rockduster," use the coupon.

VAPORIZING LIQUID AIR PUMP EXTINGUISHER

A NEW, one gallon Vaporizing Liquid fire extinguisher named the Air-Flo has been announced by the Buffalo Fire Appliance Corporation of Dayton, Ohio. It operates on an entirely different principle, in that big, duel air pumps build up internal air pressure which instantly forces the liquid out in a continuous, steady stream up to 30 feet. Light weight and easy to handle, this new extinguisher offers highly effective protection against electrical and flammable liquid fires, the makers say.

According to the manufacturer, quick, dependable action of the Buffalo Air-Flo is guaranteed by rugged construction, non-freeze qualities of the VL liquid, and Dryex . . . the remarkable new drying agent which prevents internal corrosion.

Sealed in an air-tight compartment, the Vaporizing Liquid will last for years—only annual inspection is necessary. Recharging is easy and can be accomplished on-the-spot. A special holder is available for trucks and busses. For details, send in the coupon.

'ACUUM HAND PUMPS

kheim Oil Tank and Pump Co., ans, announces the addition of industrial models to its popular gh Vacuum Hand Pumps. The designed with safety as a sideration, are approved by er's Laboratories, for dispens- e and petroleum base products. s are also useful in dispensing er industrial liquids such as oils, water, glycerin, alcohol, and other solvents.

e new models (Nos. 970, 971 ave bung adaptors with a vise- which can be tightened on the th without a wrench or pliers. n stubs are galvanized and all s which are not made of stain- tre Permolited on the inside to ust and corrosion.

970 has a non-drip discharge ch simplifies filling cans and tainers. There is a baffle or e spout which permits expan- still prevents liquids leaking pout when the pump is idle.

71 is equipped with 8-ft. static and UL-recommended vacuum Model 972 is equipped in the ner as the 971 but with the ad- n 8-gallon flow meter.

umps can be installed in 1½" gs of drums and tanks. By re- e old-fashioned and hazardous spigot method, these low-cost minate wasteful dripping and oors, reduce floor space re- storage, and dispense liquids free of sediment or condensa-

on to the added safety features, have the same characteristics gular Tokheim High Vacuum ps. Operating with a single they pump on both the back- forward stroke and dispense 20 r 100 strokes. There is no tion and the pumps are self- They are easy to operate and service. For details, use the

LARGE GRAVITY-FEED OILERS

NEW large-capacity gravity feed oilers are now available in 10 oz., 1 pint, 1 quart and 2½ quart capacity Pyrex glass or Lucite plastic reservoirs. With lock-ring or ratchet-feed adjustment, they are designed to feed any predetermined number of drops per minute. Made by the Trico Fuse Mfg. Co. of Wis., they are recommended for applications on large stationary bearings, machinery, journals, conveyor drive chains, or wherever a large oil reserve is desirable.

The rate of feed can be regulated by a simple needle valve control and a shut-off lever is provided to stop the feed. Provision is also made for flushing the bearing, a desirable feature when starting machines that have been idle. The oilers have standard threads for mounting directly on top of the bearing or part to be lubricated. It is also available with lock-nut for mounting on a bracket, or with a compression fitting for connection to copper or Neoprene tubing. Filler caps are of ample size, dust-proof, self-closing and have extended lip for convenience in opening. All metal parts are reinforced and silver-alloy brazed to provide a solid, non-leaking unit. For details, use the coupon.

LENS TISSUE & DISPENSER

A NEW silicone-treated tissue for cleaning goggles and glasses in factories, mills and offices has been developed by the combined efforts of the General Electric Co. and The Silicone Paper Co. of America, Inc. Called MAGIC LENS TISSUE, the sheets are interfolded for handling in a simple dispenser.

The tissues are specially treated so that the cleaning of lenses becomes a simple matter of wiping the surface with the tissue. They remove dirt, dust, lint and smears from goggles and glasses and pay off in production by making possible clear, clean lenses at all times for shop workers and greater efficiency for all workers in offices and plants. These dispensers and Magic Lens Tissues can be conveniently located in all major working areas, as well as near vending machines, in company garages, first aid and reception rooms. For complete details, check the coupon.

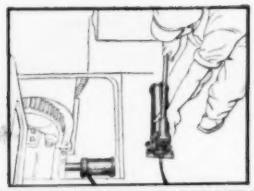
ALL-PLASTIC LENSES

THE Goggle Parts Co. of Ohio announces the development of a new line of all-plastic lenses. The line consists of "Rexlite" optical lenses for chippers and grinders and "Acelite" cover lenses for burners and welders. Both lenses are notable for extraordinary impact resistance as well as high optical properties and superior resistance to pitting. The new lenses are unconditionally guaranteed against breaking in service. Note the clean fracture of "Rexlite" all-plastic lens which was subjected to an impact test far greater than that prescribed by the National Bureau of Standards. For details, send in the coupon.

NON-SKID SANDAL

A NEW type non-skid canvas sandal called Slogs has recently been developed for use in manufacturing plants to reduce the danger of workmen slipping on wet floors, and inside storage tanks and under any other conditions where wet smooth surfaces present a slipping hazard. Made by Bellerose Products Co., Slogs are currently in use in food processing plants where they have been thoroughly plant tested. Workmen have found that Slogs increase their efficiency and make it possible to accomplish the job with less fatigue because they can move about without fear of falling. Since Slogs are worn over the regular boots or shoes they reduce wear on the regular footgear.

Slogs are made of 3 layers of very heavy special cotton duck and are strongly reinforced at all critical points of strain. They can be reversed when one side becomes worn. They are absolutely non-abrasive and will not injure any surface. For details, send in the coupon.



REMOTE-CONTROL PULLERS

REMOTE control that assures the safety of workmen is a chief feature of the new Simplex Re-Mo-Trol hydraulic pullers for machinery maintenance and moving jobs in factories, mines, oil fields, construction, transportation, etc. The units consist of pumps and remote control rams connected by a 6-foot length of high-pressure hose. The operator can thus stay out of areas of possible danger should the load shift or fall. The units can also be used where lack of space prohibits application of self-contained pullers or jacks.

In addition to its safety advantages, Re-Mo-Trol utilizes a unique "Center-Hole" construction that simplifies hitherto difficult jobs, such as pulling axles, shafts, pins and liners by eliminating most of the rigging usually needed.

Tubular ram construction allows a center pulling screw or rod to be inserted through the center-hole and secured to the object to be pulled. As the ram plunger extends, the rod is drawn through the ram, which supplies its own back-up.

Re-Mo-Trol units may also be used with pulling brackets and lateral pull rods as well as for all kinds of conventional pressing, straightening or lifting operations. A variety of auxiliary attachments may be had. Capacities are from 10 to 100 tons. All units are easily portable. For details, use the coupon.

May, 1951

To Safety Maintenance & Production

75 Fulton St., New York 38, N. Y.

For prices and complete details of items mentioned in this month's "What's New in Safety Products," check items that interest you and mail coupon.

- ☐ Rubberized Paint
- ☐ Portable Rock-Duster
- ☐ Vaporizing Liquid Air Pump Extinguisher
- ☐ High-Vacuum Hand Pumps
- ☐ Large Gravity-Feed Oilers
- ☐ Lens Tissue & Dispenser
- ☐ All-Plastic Lenses
- ☐ Non-Skid Sandal
- ☐ Remote-Control Pullers
- ☐ Defense Light
- ☐ New Safety Saw
- ☐ Humidity Control Unit

Firm Name .....

Attention of .....

Position .....

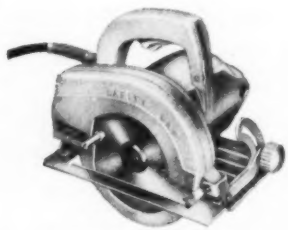
Firm Address .....

City .....

DEFENSE LIGHT

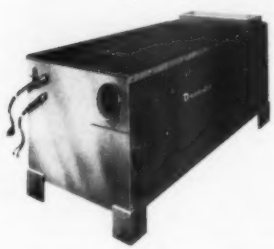
A NEW automatic emergency light that gives positive assurance of illumination when the regular source of current fails has been developed as an inexpensive unit by the Electric Cord Co. The emergency light plugs into any 110-volt AC wall outlet, and failure of the current causes the lamp to light automatically on battery power.

The floodlight type head clamps onto a Burgess 7½-volt or equivalent battery. The head is adjustable in any direction and also has a handle so that the unit can serve as a hand lamp. Providing several hours of 21 candle-power light, the Defense Light, with its automatic features, should find wide application for civil defense and rescue purposes and in factories, hospitals, stores, restaurants, theaters, offices and homes. Although of low cost, the emergency light will prevent panic and accidents, protect property, and expedite evacuation and rescue work. For details, use the coupon.



NEW SAFETY SAW

STANLEY ELECTRIC TOOLS of Conn., announces the W65 Stanley Electric Safety Saw—a NEW lightweight 6 inch Saw which combines high speed and dependability on all types of jobs. The new W65 with a Universal type, DC or AC motor, 60 cycles or less, 5600 RPM, features perfect balance in any position; a "Multi-Grip" Handle, stippled for sure grip; a momentary contact switch, and an automatic telescoping Safety Guard with manual control—easily operated without danger to the operator. A Round Arbor allows the use of any standard blade. The Saw bevels at any angle up to 45 degrees to a 1½ inch depth. Cuts up to two inches deep at 90 degrees. Saw housing of die cast polished aluminum, with steel base that will not warp; helical gears, with full ball and roller bearings throughout. The new W65 Safety Saw is equipped with a combination Rip and Cross Cut Blade, wrenches, and lubricant, and comes packed in a distinctive metal carrying case. Additional accessories are available. For further details, send in the coupon.



HUMIDITY CONTROL UNIT

MANUFACTURE of a new adsorption-type package unit for year-round humidity control and protection against rust, mold, mildew and corrosion in industrial applications has been announced by Dryomatic Corporation of Va.

The unit, catalogued as Model 100, brings portable moisture control within the budget and space requirements of industries and businesses that annually lose millions of dollars because of moisture damage. Acceleration of the demand, particularly for the protection of strategic materials and installations, has caused the addition of this larger size model.

Application of the unit to a large cross-section of industry, includes candy; food processing; seed storage; warehousing; fur and cloth storage; electrical, wood, metal and plastics products; machine parts; vaults; electronic and telephone installations; laboratories; photographic, paper and printing supplies; and dozens of others where moisture control is an important preservative factor.

The Model 100 unit is a three-channel continuous adsorption dehumidifier with plug-in automatic operation. There are no buckets to empty or chemicals to replace. It is effective singly in enclosed areas up to 25,000 cubic feet. In larger areas, a number of the Model 100's can be installed, thus obviating the need for custom engineering even in larger spaces of plants, warehouses, and installations. The unit can give precise humidity control in a wide range of temperatures—from minus 40 degrees Fahrenheit to plus 100 degrees, making it ideal for maintaining low humidity levels in cold storage plants and unheated warehouses.

N. Y. Safety Conference

(From page 68)

most precious natural resource this nation has is its manpower. We are engaged in a world struggle for survival. Every brain, every pair of hands must be used to the utmost to defeat communism. The struggle will be tough.

"It is essential that we think and do something more than we have ever done in this nation about accident prevention in terms of conserving the human resources and as a "must" activity to enable the United States to fulfill its role in world affairs. Often in the past, we thought of accident prevention in terms of good business or human suffering and deprivation.

"Now, it becomes an essential factor in national survival. Anybody killed, injured or off his job because of impairment of health is an asset to the Russian Bear and a tragedy to the democracies of the world."

Mr. Burke's program for management-labor committees follows:

"1. Making detailed and immediate investigation of disease or accident to determine causes and recommend preventive measures.

"2. Development of data to indicate illness and accident reports.

"3. Inspection of plant to detect hazardous conditions or unsafe work methods.

"4. Recommendation of changes or additions to protective equipment or devices for the elimination of hazards.

"5. Promotion of health education and safety training for committee members and workers.

"6. Selling the safety and health program to the workers.

"7. Regularly scheduled meetings for the purpose of discussing occupational disease and accident prevention and developing suitable corrective measures."

Public Utility Safety

The old cotton flag which has for decades warned pedestrians of street openings or other construction appears to be on the way out. Flags of plastic, which will defy workmen's attempts to use them as handcloths, are being considered as replacements, according to A. E. O'Connor, safety lecturer for the Consolidated Edison Company of New York Inc.

He said many tests and experiments had led the utility company to the "radical step" of painting its vehicles and equipment an orange color for accident prevention. Hours of work were scheduled so as to coincide with periods of minimum traffic, which varies in different parts of the metropolitan area. All supervisors and top mechanics receive special instructions in selection and use of proper warning equipment and protective arrangement of the work area.

"As we gain more experience," said Mr. O'Connor, "variations in our present arrangements or equipment may become desirable. Some of the contemplated improvements now under discussion follow:

"1. New types of tool carts and tool boxes. These will be of stainless steel to increase life and reduce maintenance. Streamline designs will greatly reduce overall dimensions but adequate capacity will be retained. When not in use, they will be parked on the sidewalk and securely attached to the base of the lamppost.

"2. Experimentation with more efficient methods of transporting these carts and boxes. One promising method is to use trucks having a lift tail gate.

"3. Pneumatically inflated pylons now in use are being further improved in order to obtain speedier erection, cost reduction, better shape and generally improved performance. This, in general, applies also to 'Venetian blind' type barricades for which we believe there are many good uses.

"4. Further experimenting with plastic tarpaulins. Our main purpose is to develop a durable tarpaulin which can be easily cleaned. The conventional type of canvas tarpaulin becomes an eyesore after some weeks of use.

"5. Plastic flags are also under consideration to eliminate the cotton types now in use, which occasionally serve as rags to clean greasy hands. Plastic material, fortunately, will not serve that purpose and is easily cleaned."

Accident Costs

The fact that indirect costs of industrial accidents average four times the cost shown by compensation payments and time and production loss was emphasized by Robert A. McVety, safety director of Remington Rand, Inc. He told safety engineers and accident prevention experts that this ratio should be impressed on top management to win support for safety programs and to keep "hatchet men" from undercutting their jobs and achievements.

"Let us not forget," Mr. McVety said, "that the indirect costs of accidents—known as the 4 to 1 ratio—is tucked away in the cost of production, though some accountants and some 'hatchet men' don't always seem aware of this fact. It is not an uncommon experience for the 'hatchet man' to work his way through a plant 'weeding out' those whom he believes to be redundant, excessive or unneeded. Yet not infrequently the costs of accidents to a concern may be higher than the combined salaries of many highly paid executives while little thought is given to the cost of accidents."

Discussing liability insurance costs and the actuarial basis of their determination, Mr. McVety said the building and construction, woodworking, mining and foundry industries had a prime premium cost "much higher than" the needle trades, textile trades and even branches of the machine industry.

"In addition to this," he declared, "companies in each classification receive an experience rating based upon their accident cost as compared with their premium payments, so it is not difficult to see that any well designed, approved and carried out system of safety inspection and accident prevention recommendation is a sound investment."

check list

OF PRODUCTS ADVERTISED IN THIS ISSUE

For full details, without obligation, merely check this list, fill in your name and address, and mail to: Service Dept., SAFETY MAINTENANCE & PRODUCTION, 75 Fulton St., New York 38, N. Y.
May, 1951

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- ☐ Cord-On-End Soles — 2
- ☐ Safety Equipment — 3
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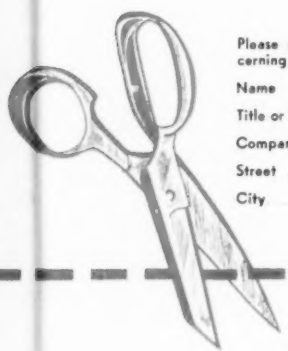

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Stonehouse Building • 9th at Larimer • Denver 4, Colorado • AComa 2202

for industrial *First Aid*

MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCEIN-SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H.W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

The 2% aqueous solution is not irritating or toxic in wounds; minor injuries are reported more promptly when 'Mercurochrome' is the routine antiseptic, because treatment is not painful.

'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off.

HYNSON, WESTCOTT & DUNNING, INC.

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